Major Principles

in Areawide Planning of Facilities for Tuberculosis Services

Planning

▲ Tuberculosis programs must be functionally coordinated to assure a balanced pattern of tuberculosis facilities and services covering all areas of the State.

▲ Planning of facilities for the care of the tuberculous patient should be integrated and coordinated with the planning of other health facilities.

▲ Coordinated health facility planning should be the product of the interaction of State and local or areawide planning efforts.

▲ A planning group should establish both short- and long-term objectives which will be evaluated periodically and adapted as changing circumstances require.

▲ Compilation of factual background information on the nature and scope of State and local tuberculosis programs should be an essential element of tuberculosis facility planning.

Evaluation

▲ Evaluation of the clinical, administrative, architectural, and engineering aspects of each tuberculosis hospital is an essential step in determining its future role in a statewide pattern of services and facilities.

▲ Tuberculosis hospitals with declining occupancy rates can be partially converted for the care of nontuberculous conditions if the facilities can be adapted or modernized to meet current physical, functional, and medical care standards.

▲ Hospitals which are uneconomical to operate because of their size or which are functionally or physically obsolete should be abandoned and not converted to some other type of inpatient health facility.

▲ The programs, services, and functional condition of hospitals selected to continue providing tuberculosis care should be evaluated to determine how they might improve their effectiveness.

Construction

▲ Many existing tuberculosis hospitals which are structurally and functionally obsolete should be replaced by new buildings.

▲ All new tuberculosis hospitals should be constructed as elements of regional medical centers in order to provide access to other specialized facilities, to encourage interchange of medical staff, and to assure economical conversion of the hospitals to other health purposes should the need arise.

Outpatient Care

▲ Facilities for outpatient care should be planned to insure a balanced pattern of diagnostic, treatment, and followup services throughout the State.

▲ Training of private and public health physicians in the latest techniques of tuberculosis therapy, especially in areas formerly served by tuberculosis hospitals, should be undertaken as an essential element in the overall State tuberculosis plan.

Personnel

▲ Professional staff of former tuberculosis hospitals should be fully utilized in other tuberculosis facilities and clinics.

Implementation

▲ Specific steps should be taken at an early stage of the planning process to implement proposed changes in tuberculosis programs as well as in State and local statutes and to secure adequate and balanced sources of financing.

Areawide Planning of

FACILITIES *for* TUBERCULOSIS SERVICES

Report of the Joint Committee of the National Tuberculosis Association • Public Health Service

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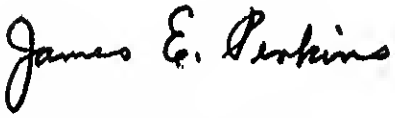
FOREWORD

THIS REPORT, the product of a Joint Committee established by the National Tuberculosis Association and the Public Health Service, recommends the creation of a system of tuberculosis facilities and care throughout the Nation geared to current needs and designed to assure quality treatment for all tuberculosis patients.

A sharp decline in the demand for tuberculosis beds in recent years has paralleled a growing concern over the deterioration in the physical and functional condition of many tuberculosis hospitals. The report analyzes the impact of the new drugs on the activities of many tuberculosis hospitals. It also recommends planning principles to help States and communities to evaluate their tuberculosis facility needs and to redirect their tuberculosis programs.

Application of the recommendations of this committee should help bring order and balance to the individual activities of the many public and voluntary agencies in the tuberculosis field. Only through their coordinated efforts will it be possible to achieve effective long-range planning to eradicate tuberculosis in the United States.



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GENTLEMEN:

THE IMPACT on existing patterns of tuberculosis services of the new drug therapies and of the unprecedented decline in the number of tuberculosis hospitals during the last decade has been under study for more than a year by the Joint Committee on Areawide Planning of Facilities for Tuberculosis Services. The findings and recommendations are presented in this report.

The committee has attempted to put in perspective the major factors which brought about these changes and to describe the difficulties some States and communities experienced when adapting their tuberculosis programs. It has also sought to identify guidelines which could assist planning groups when evaluating and preparing recommendations for changes in tuberculosis facilities and services.

While the report stresses the importance of areawide planning to insure maximum use and coordination of all health resources, it recognizes the special circumstances associated with tuberculosis planning. The most challenging problems in the tuberculosis field today, in marked contrast to those in other health areas, are to scale down the volume of services and facilities to estimated needs; to shift scarce resources to more productive aspects of the tuberculosis program; and to redirect in an orderly manner surplus facilities and personnel into other health fields. Social, economic, and legislative adjustments necessary to effect such changes have lagged behind medical advances in the treatment of tuberculosis, thus aggravating the problem.

4. Planning groups should seek to remove legislative and financial restrictions which inhibit change in tuberculosis programs.

The committee hopes that this report will be helpful to all concerned with the problems associated with tuberculosis and will encourage them to join forces in a concerted effort to produce a new and viable pattern of tuberculosis facilities and services throughout the country.

JOHN J. BOURKE, M.D.
Chairman

OCTOBER 1963.

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Summary

OUND CHANGES in tuberculosis therapy g the last decade disrupted a pattern of ies and services which had existed in this ry, with few modifications, for the pre- 70 years. The full impact of these changes v evident in the major decline in the num- f tuberculosis hospitals and beds, and in rewing role of outpatient clinic services. as evident is the necessity for States and communities to create new patterns of tuberculosis facilities and services to replace the obsolete systems, nor how this reordering can be efficiently accomplished. This report has been prepared to highlight some of the changes which occurred and to suggest ways in which States and local communities can insure the provision of quality inpatient and posthospital care to the tuberculous patient.

Extent of the Problem

LE TUBERCULOSIS death rates have de- ed dramatically in the past 50 years, the striking declines have occurred in recent s, with a 70-percent drop between 1959 1961. The annual decline in the number ew active cases of tuberculosis, while per- less dramatic than the death rates, unts to a 30-percent reduction between 1955 1961. Tuberculosis, however, remains a us threat to public health. Approximately 00 new active cases of tuberculosis re- ing treatment occurred in 1961. An in- sing proportion of these cases are found ng persons 65 years of age and over, and case rates are highest in this age group.

broader dimensions of the tuberculosis blem are best reflected in a Public Health rice estimate that the total number of cases current health department tuberculosis registers in 1969 was six times greater than the annual number of newly reported active cases.

About 75 percent of the patients admitted to tuberculosis hospitals today have moderately or far advanced tuberculosis, and about one-third of these are readmissions. It is anticipated that an increasing proportion of this caseload will be drawn from persons residing in urban areas. In 1969, 18 cities with about one-fifth of the population of the continental United States produced almost one-third of the new tuberculosis cases.

Before the introduction of modern drug therapy in the 1940's, reliance on bed rest and localized surgical procedures, such as pneumothorax, resulted in long periods of hospitalization and contributed to the shortage of beds for new cases. Although a decreased incidence of tuberculosis and shorter hospital stays have

reduced pressures for tuberculosis beds, initial treatment in a hospital is still highly desirable and is essential for relapsed cases and patients with tuberculosis caused by drug-resistant organisms.

Since a smaller proportion of the total treatment time is now spent in the hospital, the need for adequate clinic and followup services for patients upon leaving the hospital has increased. This development has accentuated the importance of keeping private and public health department physicians abreast of the latest methods of treatment and control.

Emergence of chronic nontuberculous pulmonary diseases as a growing health problem may have an impact on the future role of some tuberculosis hospitals. While national data are not available, preliminary estimates prepared by the Veterans Administration suggest that by 1968 there might be as many veterans seeking treatment for chronic nontuberculous pulmonary diseases as there will be for tuberculosis. The experience of many tuberculosis hospitals in recent years would appear to confirm this projection; however, the impact on most State and local facilities will probably be slight.

Patterns of Change

Decrease in the demand for tuberculosis beds created problems of converting unneeded tuberculosis hospitals to other health uses or closing them. Between 1954 and 1961, some 227 hospitals partially converted an unused portion of their facilities for the care of nontuberculous patients or discontinued all treatment of tuberculosis. Major reasons for the changes were the lessened demand for tuberculosis beds, the higher per diem costs of patient care, and the growing pressure on States and communities to provide facilities for the chronically ill, the mentally ill and retarded, and the aged.

Many in the tuberculosis field at first failed to recognize the immensity of the impact the new drugs would have on the future of tuberculosis hospitals and were reluctant to convert or close unneeded facilities. Communities sometimes objected to the expected loss of income or employment, or were concerned about the type of facility which might replace the hospital.

Planning Principles

Much of the uncertainty surrounding the closing or complete conversion of tuberculosis hospitals during the last decade could have been avoided through timely planning. While a few States and communities have devoted considerable effort to planning their future programs, no overall attention has been directed to the problem. The lack of comprehensive, unified planning is being overcome in some of the larger metropolitan areas by the establishment in recent years of areawide health facility planning agencies. Planning for tuberculosis facilities should provide a balanced system for the continued use of existing adequate facilities, replacement of certain obsolete tuberculosis hospitals, an integration of tuberculosis control and clinic services with inpatient hospital treatment, coordination with other health programs, and a specific program for the consolidation or conversion to other uses of surplus tuberculosis facilities. Such planning should take into consideration the following principles:

▲ **Tuberculosis programs must be functionally coordinated to assure a balanced pattern of tuberculosis facilities and services covering all areas of the State.**

▲ **Planning of facilities for the care of the tuberculous patient should be integrated and coordinated with the planning of other health facilities.**

▲ **Coordinated health facility planning should be the product of the interaction of State and local or areawide planning efforts.**

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▲ Facilities for outpatient care should be planned so as to insure a balanced pattern of diagnostic, treatment, and followup services throughout the State.

▲ Training of private and public health physicians in the latest techniques of tuberculosis therapy, especially in areas formerly served by tuberculosis hospitals, should be undertaken as an essential element in the overall State tuberculosis plan.

▲ Professional staff of former tuberculosis hospitals should be fully utilized in other tuberculosis facilities and clinics.

▲ Specific steps should be taken at an early stage of the planning process to implement proposed changes in tuberculosis programs as well as in State and local statutes and to secure adequate and balanced sources of financing.

The Planning Process

ADEQUATE and high-quality care for
s patients today requires active
on and leadership by the State. The
may wish to designate a specific
ncy which, with the assistance of a
dvisory committee, would be respon-
omprehensive statewide planning of
is facilities and services; or he may
point a special group charged with
sion on a continuing basis. The
committee appointed to advise a
ncy should be composed of experts in
culosis field selected for their pro-
nowledge and status. Members ap-
the planning body, regardless of the
which it is constituted, should be broadly representative of the principal public and private agencies and organizations in this field and should include outstanding community leaders. A community with a well-organized areawide health facility planning agency should appoint a technical advisory committee to assist the agency in planning tuberculosis facilities. In the absence of a local planning agency, community leaders should establish a group responsible for reviewing local tuberculosis programs and making recommendations to the State planning group.

Primary objectives of a State tuberculosis planning group should be to: (1) recommend a comprehensive program for reordering the pattern of tuberculosis facilities and services in

the State; (2) relate these objectives to communities; and (3) establish methods and a timetable for bringing about necessary change. A State tuberculosis planning group should establish uniform evaluation techniques which will permit the State and communitiee to make valid comparisons of tuberculosis facilities and eervices and to weigh their relative effectiveness. It would also be desirable to arrange for outside experts familiar with the quality of services in tuberculosis hospitals throughout the Nation to assess the qualitative aspects of each local facility.

One of the most difficult and important undertakings of a State or local planning group will be to designate those hospitals which should elose or diecontinue the treatment of tuberculosis or which should convert a portion of their beds for the care of other types of patients. Another major undertaking of a State planning group should be to review, in cooperation with the State's attorney general, all legislation governing the operation and financing of tuberculosie programs in the State, and to formulate euitable legislative recommendations to implement the group's program proposals.

Implementation

Early in the planning process, a planning group should identify the obstacles hindering redirection of the program and devise euitable techniques for overcoming them. While these harriers will differ according to the history and pattern of tuberculosis services in each State, certain legislative, financial, and organizational problems are common to moet States. Major changes in ths status or functions of local tuherculosis hospitals ars not permitted in some States without consent of the lsgislature, while in others, localities havs almost complete autonomy. State laws should be amended to increase the discretion of communities in such matters so long as they conform to the hroad objectives of ths tuberculosis program plan. Legislation could be enacted which would, for example, psrmit certain tuberculoeis hospitals to treat nontuberculoue conditione; autborize communities to use tuberculosis hoepital appropriations for health department tuberculosis clinic programs; or allow the uee of tuberculoeis bospital tax levies for all authorized tuberculosis programs.

The ability to pay should no longer bo a factor in determining whether or not a pereon is to reccive proper treatment. Coneideration should bs given to the enactment of legislation whieh will insure that all patients requiring treatment will receive it and that the provision of such care will bo considered primarily as a puhlic health rather than a public welfaro problem.

The varying regulatory standards of State ageneies can have a marked influence on decisions regarding the future of certain tuberculosie hospitals. Potsntial conflicts in procedural and building standards should be reconciled whonever the differences among the State agencies ars not justified by actual variations in program requirements.

Personnel

The soarcity of trained professional personnel in the tubsrculosis field is expected to hecome more eevere in the years ahead. Factors such as the isolated location of eome hospitals, retirement systems which inhihit free movement of professional etaff among cities and States, and the fact that many professionale working in tuberculosis hoepitals with declining patient loads are unable to make full uee of their ekills, all contribute to the difficulties involved. Tbe present uncertainty surrounding the future of many tuberculoeis hospitale has also contrihuted to the difficultiee of maintaining porsonnel. Promulgation of a plan deeignating those hospitals which are expected to continue to provide tuberculoeie care would reaseure some etaff who had heen planning to sesk more permanent or predictable employment, and allow time for othere to transfer to different positions in the tuberculosie fisld.

Enlisting Support

Support for the various program recommendations may be obtained through the involvement in the planning process of representatives of the lay and professional leadership of a community or the State and through the statewide dissemination of information documenting the facts and outlining the reasoning behind planning decisions. Newspapers, television, and radio should be used to publicize special news and feature stories about planning recommendations. Pamphlets and brochures highlighting the principal recommendations and explaining how each community may help to improve its tuberculosis program could be prepared. Meetings with those directly affected by the planning proposals can also be of considerable assistance in educating the public and professional personnel in the wisdom and desirability of the program developed by the planning group. To the extent possible, community educational programs should be planned and carried out in collaboration with the voluntary tuberculosis associations. The important contribution that these associations can make to the development of comprehensive planning for tuberculosis facilities and services should be recognized throughout the planning process and during implementation of proposed programs.

Chapter I

Tuberculosis Today

ATMENT of the tuberculous patient has been gnized as an important tool in breaking the n of infection since the demonstration by min in 1865 that the disease is transmissible the isolation of the tubercle bacillus by h in 1882. Even before 1882, the first rculosis sanatorium had been established Germany by Brehmer. In 1884, the sanatorium movement in the United States began with the founding of the Trudeau Sanatorium at Saranac Lake, N.Y., which demonstrated that rest was beneficial to tuberculosis patients. Thus, prevention and treatment have been closely associated with the provision of hospital care from the beginning of tuberculosis control in this country.

Extent of the Tuberculosis Problem

ILE TUBERCULOSIS death rates have desed dramatically in the past 50 years, the t striking declines have occurred in recent s. Between 1950 and 1901, the tuberculosis th rate dropped 76 percent—from 22.5 per ,000 population to 5.4. The number of new ve and probably active cases of tuberculosis declined at a slower pace than deaths—from 68 in 1955 to 53,720 in 1901—a 30-percent uction. The 1961 incidence rate of 29.4 100,000 population is approximately 5 ent lower than the previous year, but it ss than the average annual decrease of 7 ent for the 5 years from 1955 to 1900. pendix tables 1–3.)

The annual number of new active cases uberculosis is a useful indication of trends, it does not reflect the true scope of the blem; that is, the total number of cases or treatment or in need of supervision at given time. According to estimates pred by the Tuberculosis Branch, Communile Disease Center, Public Health Service, number of cases on current tuberculosis registers of health departments at the end of 1960 was six times greater than the 55,000 newly reported active cases for that year. About 58,000 active cases were reported to be in hospitals, with another 62,000 active cases unhospitalized. In addition, about 210,000 included on current registers were inactive cases under public health supervision or their activity was undetermined. About 50,000 of this last category were under drug therapy.[1]

New active case rates in recent years have shown a steady decline in almost all age groupings, with the largest drop occurring among those between the ages of 15 and 24. These rates are higher in persons over 45 years of age, with the highest among those 65 and over. (Appendix table 4.) They are higher, as a whole, in males, among nonwhite races, and in low-income groups. There has also been a decided increase in the proportion of the total cases found among persons in the older

[1] Shaw, Lawrence W., Wyman, Arthur H., Cases on Current Tuberculosis Registers, Public Health Reports, 78: 12, January 1963.

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age groups. In 1955, 15.1 percent of the new active cases occurred among persons 65 and older—in 1961, this percentage had risen to 19.1 percent. By contrast, the percentage of new cases among the 25 to 44 age group dropped from 35 percent in 1955 to 30.3 percent in 1061. Yet while case rates are highest among those 65 and over, the proportion of the cases occurring among persons in that age group is still less than 20 percent of the total. About half of the cases occur among persons under age 45. However, because of the shift of tuberculosis into the older age groups, a greater need exists today for a multiplicity of services unrelated to tuberculosis. (Appendix table 5.)

In 1960, 18 cities with about one-fifth of the population of the continental United States produced almost one-third of the new active cases of tuberculosis. Because of the higher case rates and the trend toward greater concentration of our population in such cities, an increasing proportion of the tuberculosis caseload probably will be drawn from persons residing in urban areas. (Appendix table 6.)

Available data on the type and severity of the disease in newly reported active cases show only minor variations in overall patterns since 1953. The severity of the disease is not indicated on reports for about 15 percent of the pulmonary cases. In those instances in which the severity of the disease is specified, approximately 80 percent of the patients admitted have moderately or far advanced tuberculosis. (Appendix table 7.) Of these, 70 percent have positive (i.e., infectious) sputums on admission. Of the patients with positive sputum on first admission to tuberculosis hospitals, the majority harbor organisms which are susceptible to drugs. However, approximately one-third of all patients admitted are readmissions. In this group, the majority of patients with positive sputum contain organisms resistant to either streptomycin, isoniazid, or both.

Shorter hospital stays are the rule today. About half the patients occupying tuberculosis beds on June 30, 1960, had been in the hospital less than 6 months. On the other hand, approximately 25 percent of all patients have been in the hospital continuously for 1 or more years. (Appendix chart 1.)

Treatment Trends

Hospital Treatment

Before the introduction of modern drug therapy in the 1940's the major therapeutic tool in managing clinical tuberculosis was general and localized physical rest. When pulmonary cavities failed to close, surgical procedures generally known as "collapse therapy" were followed. Pneumothorax, pneumoperitoneum, thoracoplasty, and paralysis of the diaphragm provided rest for the involved lung on either a temporary or permanent basis. Bed rest for a year or more was common. These therapeutic approaches required long periods of hospitalization, which contributed greatly to the shortage of available beds for new cases. Thus, most States had long lists of patients waiting to be hospitalized. Hospitals were often located far from population centers in accordance with the then-prevalent theory that an abundance of fresh air and complete isolation from the stresses and strains of urban living were necessary in the treatment of the disease.

Today, potent chemotherapeutic agents have become the most effective treatment tools. Streptomycin, isoniazid, and PAS[2] primarily in combination, are the most widely used drugs. Other drugs are employed in treating tuberculosis caused by organisms resistant to the three mentioned above.

Surgical treatment has become much more selective. Excision of infected areas of lungs is done, when indicated, in connection with chemotherapy. Collapse therapy is seldom used now. Periods of physical rest have been drastically shortened, being reserved for the patient who is toxic, febrile, or actively bleeding, or who has resistant bacilli. The amount of physical activity permitted the patient may be related more to the patient's exercise capability and tolerance and, in general hospitals, to the demands for isolation than to the fact that he has tuberculosis.

Stress is laid today on keeping patients in the hospital at least until they have achieved

[2] Para-aminosalicylic acid.

noninfectious state. Sputum conversion[3] nder adequate and appropriate chemotherapy an occur within 1 to 2 months after initiation f therapy. Laboratory methods in general se today, however, require 6 to 8 weeks to onfirm this change, and may, at times, prolong ospitalization. Widespread adoption of re-ently developed techniques which shorten the ime necessary to demonstrate conversion could ppreciably reduce the hospitalization period or patients responsive to conventional drug egimens. Chemotherapy has also changed the haracter of hospital care since the patient is oon ambulatory and capable of pursuing a variety of recreational and educational activities within the hospital.

Shorter period of hospitalization and a decreased incidence rate have reduced the demand for tuberculosis hospital beds. While physicians sometimes recommend treatment at home, initial treatment in a hospital is still highly desirable. The selection of the proper drug combination, isolation of the patient, and his education about the disease are best carried out within the hospital under the close supervision of a medical staff. Hospitalization is mandatory for patients with tuberculosis caused by drug-resistant organisms. Their treatment with potentially highly toxic drugs requires skilled professional supervision and the laboratory services of a modern hospital. In addition, such patients frequently need surgical procedures to supplement their specialized drug treatment program.

The tuberculosis patient, faced with having to spend approximately 6 months in the hospital, frequently experiences a host of social and psychological problems. Alcoholism among tuberculosis patients, for example, is a major institutional problem requiring skillful management. While the definition of alcoholism varies from one institution to another, some tuberculosis hospitals report that as many as 30 percent of adult male patients and 10 percent of adult female patients are alcoholic. Many of these, especially the males, are drawn from skid row populations and are single and homeless. Varied medical and social services are necessary, therefore, if these patients are to remain under treatment. Rehabilitation services, including recreational, diversional, and ed ucational programs, are of considerable valu for long-term patients. Vocational counselin and prevocational exploration can also b utilized to advantage.

[3] The process by which positive sputum, containing infectious tubercle bacilli, becomes negative and is no longer infectious.

Out-of-Hospital Services

The Arden House Conference on Tube culosis in 1959 recognized that the eliminatio of tuberculosis is a realistic objective in th United States. To this end, it recommended program for the widespread application chemotherapy, as a public health measure, order to prevent further spread of tubercu bacilli by persons currently suffering from acti tuberculosis and to prevent reactivation an spread of the disease by persons who previous bad active disease and were inadequate treated. The conference also recommended th State and local public health authorities assur responsibility for insuring adequate treatmo and rehabilitation of all patients with tub culosis.[4]

Present medical practice recommends th chemotherapeutic treatment of tuberculosis continued without interruption for about years. Continuity of inpatient and outpatie care during this period is of critical importan if the patient is not to relapse. The increasi proportion of patients who receive the bulk their treatment after leaving the hospi underscores the importance of accurate repo ing of new cases, the value of case registers insuring proper supervision of known cas and

through outpatient clinics, [illegible] rangements are occasionally developed w community agencies to offer a variety of s porting services to the patient, such as rehab tation services, home nursing, social servi homemaker service, occupational guidance, income maintenance.

Health department physicians are be called upon to assume responsibility for su vision of clinical programs and, in some stances, to provide clinical care and rel services. Specific efforts, therefore, must

[4] See item 11, selected bibliography, app. C, p. 4

made to keep these physicians abreast of the latest methods of treating tuberculosis.

Relaxation of restrictions on hospital and clinic use, of residence requirements, and of the means test has also occurred in some States as tuberculosis beds have becemo generally available.

Chronic Nontuberculous Pulmonary Diseases

The growing proportien of patients in tuberculosis hospitals who are heing treated fer ehrenie nontuberculous respiratory diseases may have an impact on the future rele of seme of these institutions. Wbile natienal data are not available, preliminary information prepared by the Veterans Administration illustrates what probably is emerging ae a woll-defined trend in mest States. These data suggest that, by 1970, the number of veterans hospitalized for chronic nontuberculous respiratory disoases will equal or exceed the number of hospitalized tuberculosis patients. In 1954, the number of patients hospitalized in Veterans Administration hospitals for tuberculosis was approximately six times the number hospitalized fer ehronic nontuberculous respiratory disease. By 1961, this rolationship had decreased to two times. (Appendix chart 2.) More recent projections indicato that there might be an equal number of each type of patient as early as 1968. While a decline in the number of tuberculosis pationts is partly responsible for this change, there has been a corresponding or greater absoluto increase in tho number of othor chronic pulmonary patients seeking treatment.

A certain number of these patients have always been treated in tuberculosis hospitals. In roeent years, however, they apparently have formed an increasing proportion of tho caseload. Thus, the trond evidenced by the Veterans Administration data is probably true, to a lesser degreo, in many State and local tuberculosis hospitals today. However, the extent of the impact of such patients on the occupancy rates of most tuberculosis hospitals will probably be slight because of the generally shorter periods of hospitalization, the specialized treatment required, and the fact that most of them will be treated in genoral hospitals.

Chapter II

Patterns of Change

DESPITE THE DECLINE in the demand for tuberculosis beds, on June 30, 1961, there were 432 hospitals in the United States providing a total capacity of 67,034 tuberculosis beds. Each of these hospitals had 10 or more beds set aside for the care of tuberculosis patients. Of the 345 non-Federal facilities, 186 were tuberculosis hospitals with rated capacities totaling 38,060 beds. (Table 1.)

Table 1. **Hospitals with tuberculosis beds, by type of ownership, as of June 30, 1961**

Ownership	Number of hospitals	Rated bed capacity
Total	432	67,634
Federal	87	9,712
Non-Federal	345	57,922
Tuberculosis hospitals	186	38,060
Other hospitals [1]	159	19,862

[1] General and other types of hospitals with 10 or more beds set aside for the care of tuberculosis patients.

Source: Tuberculosis Branch, Communicable Disease Center, Public Health Service, U.S. Department of Health, Education, and Welfare.

CONVERSIONS AND CLOSURES OF TUBERCULOSIS HOSPITALS

AN APPRECIATION of the size and character of the changes in the tuberculosis hospitalization picture may be gained by reviewing some of the information on the number and types of tuberculosis hospitals which closed or converted to some other health use since 1954.[1] (Table 2.)

Type of Change

In 1954, non-Federal tuberculosis hospitals in operation totaled 412. Of these, 227 had closed their doors or had converted in whole or in part to other health uses by June 1961. A

[1] Most statistical data used in this chapter were derived from a committee questionnaire completed for each tuberculosis hospital which closed or converted between 1954 and 1961. In addition, persons familiar with the circumstances and difficulties surrounding the closure or conversion of 24 of these hospitals were interviewed to obtain case histories. While the case history information is not subject to statistical generalization, it illustrates the kinds of problems faced by communities attempting to adapt their tuberculosis programs to changing needs.

Table 2. Number of existing non-Federal tuberculosis hospitals and beds, United States, 1954 and 1961

Year	Number of hospitals	Bed capacity	
		Rated	Available
1954	412	76,853	73,342
1961	186	38,060	35,589

Source: Tuberculosis Branch, Communicable Disease Center, Public Health Service, U.S. Department of Health, Education, and Welfare.

breakdown of this figure shows that 71 hospitals had closed, 72 had converted some portion of their tuberculosis beds for the care of other health conditions, and 84 had discontinued all treatment of tuberculosis and completely converted to the provision of other types of health services. About half of all these hospitals were owned by county or municipal governments, 34 percent by nongovernmental groups, and 16 percent by the State. Although only 16 percent of the hospitals involved were State owned, they accounted for about 30 percent of the beds lost. By contrast, the relatively large number of nongovernmental tuberculosis hospitals represented only 25 percent of the beds lost. (Table 3.)

Table 3. Net loss of tuberculosis beds in tuberculosis hospitals which converted or closed, by type of ownership, 1954–61

Ownership and type of change	Converted or closed hospitals			
	Number reporting	Percent	Net loss of TB beds	
			Number	Percent
Total	227	100.0	23,015	100.0
Ownership:				
State	36	15.9	6,644	28.9
Local government	113	49.8	10,614	46.1
Nongovernmental	78	34.4	5,757	25.0
Type of change:				
Partially converted	72	31.7	7,457	32.4
Completely converted	84	37.0	9,890	43.0
Closed	71	31.3	5,668	24.6

Size in Relation to Type of Change

The size of a hospital appears to have been a significant factor in determining whether it converted to some other health use or closed. Of those tuberculosis hospitals with 200 or more beds which changed their status, only 9 percent closed. Almost 65 percent of them converted a portion of their facilities for care of nontuberculous patients, and about 26 percent converted their entire facilities to other health uses. Factors other than size seem to have determined the future status of hospitals of less than 100 beds, for among these smaller hospitals there was no significant difference between the percentage which closed and those which completely converted. (Table 4.)

Table 4. Size of tuberculosis hospitals which have converted or closed, 1954–61

Type of change	Total hospitals	Rated bed capacity		
		Under 100	100–199	200 and over
Total number reported	227	117	57	53
	Percentage distribution			
Total	100.0	100.0	100.0	100.0
Partially converted	31.7	15.4	35.1	64.2
Completely converted	37.0	41.9	36.8	26.4
Closed	31.3	42.7	28.1	9.4

The relationship between the size of the hospital and the type of change undergone is perhaps best illustrated by the fact that the average rated capacity of those tuberculosis hospitals which partially converted was 234 beds compared with an average of 118 beds for those which completely converted and 80 beds for those which closed.

Extent of Partial Conversion

Almost 45 percent of the beds in partially converted tuberculosis hospitals have been set aside for the treatment of nontuberculous conditions. (Table 5.)

Table 5. Number of beds for nontuberculous patients in partially converted tuberculosis hospitals, by type of ownership, June 1961

Type of ownership	Beds		
	Total	Nontuberculous	
		Number	Percent of total
Total	16,556	7,151	43.2
State	4,355	2,147	49.3
Local government	9,866	4,259	43.2
Nongovernmental	2,335	745	31.9

Type of Partial Conversion

Approximately 65 percent of the nontuberculous beds in partially converted hospitals are used as nursing home beds or for the treatment of chronic disease patients. More than 15 percent of the beds are used for the care of the mentally ill or retarded, and 10 percent have been set aside as general hospital or county infirmary beds. The remaining 10 percent of the beds provide other types or combinations of services. (Table 6.) Approximately the same percentages apply to the uses to which beds have been put in completely converted hospitals.

Reasons for Change

Low occupancy was the primary reason for closure or conversion of tuberculosis hospitals in approximately 70 percent of the responses to this item on the study questionnaire.[2] Availability of other tuberculosis facilities was given as the primary reason for change in almost 15 percent of the responses. Only a small number of responses listed increased cost of operation as the primary reason for change. However, it was reported as one of the factors contributing to the change more often than any other reason

[2] See footnote, p. 5.

Table 6. Types of nontuberculous beds in partially converted tuberculosis hospitals, by ownership, June 1961

Type of ownership	Nontuberculous beds					
	Total	General	[illegible]	disease	home	
	7,151	718	1,136	3,169	1,388	740
	Percentage distribution					
Total	100.0	10.0	15.9	44.3	19.4	10.3
State	100.0	6.1	13.2	59.3	.6	20.7
Local government	100.0	9.5	18.7	39.3	29.7	2.8
Nongovernmental	100.0	24.6	7.7	29.8	14.5	23.5

except low occupancy rates. (Appendix table 8.)

Age in Relation to Type of Change

More than 65 percent of all tuberculosis hospitals which changed their status since 1954 had been in operation for 30 or more years. Almost 75 percent of the hospitals which partially converted were over 30 years old at the time of their change, compared with more than 60 percent of those which closed or completely converted. Almost 3 percent of the hospitals which closed had been operating for less than 10 years, while about 10 percent of the partially converted hospitals fell in this category. (Table 7.)

Table 7. Age of tuberculosis hospitals which were closed or converted to other types of facilities, 1954–61

Age of hospital (years)	Total	Converted		Closed
		Partially	Completely	
	227	72	84	71
	Percentage distribution			
	100.0	100.0	100.0	100.0
Less than 10	6.6	9.7	7.1	2.8
10–29	26.9	16.7	34.5	28.2
30 and over	66.5	73.6	58.3	69.0

Reasons for Closures and Conversions

Successful treatment with chemotherapy shortened the average period of hospitalization and, by 1960, had reduced the number of beds required to treat a given number of patients to one-fourth or one-third of what was needed earlier. As the number of unused tuberculosis beds increased after 1954, the daily cost of treating each patient rose. Fixed costs of maintaining basic nursing and medical staff or of providing necessary laboratory services had to be met despite fluctuations in the patient load. Reduced total costs for items such as food and laundry, which vary according to the patient census, ordinarily were not large enough to offset the rising unit cost of operation. However, lower occupancy rates and growing unit costs were often not sufficient to precipitate a major change in the status of the hospital. As occupancy rates declined, a building might be closed and some hospital personnel discharged. The resulting lower total cost of operation tended to reduce the pressure to halt the relatively high and steadily rising unit costs.

Usually, more immediate factors triggered the specific decision to close or completely convert a tuberculosis hospital. One of the major factors cited by those interviewed [3] as leading to the conversion of tuberculosis hospitals was the increasing pressure to make excess beds and facilities available for the care of other health conditions. With a steadily growing percentage of our population over 65, the need for nursing homes and chronic disease and rehabilitation facilities has become more urgent. The acute shortage of facilities for the mentally retarded child has also brought about pressures on States and local communities to provide hospitals and training centers for his care. Similarly, the desire to take older, slightly disoriented, senile patients out of crowded State mental hospitals and provide for their needs in less restricted, more relaxed surroundings has resulted in efforts to care for them in tuberculosis hospitals converted for that purpose.

External financial considerations also appeared to influence the decision to close or convert. Most localities were willing to send their tuberculosis patients to State hospitals when offered free or low-cost care as beds became available or when a new tuberculosis hospital was constructed nearby. Others recognized a similar economic advantage in transferring chronic disease patients being treated in community general hospitals to the excess beds in a partially converted tuberculosis hospital at greatly reduced per diem rates.

[3] See footnote, p. 5.

tivo opposition to a proposed closure or conversion. Usually, in such cases the active efforts of a newspaper editor, a vocal tuberculosis hospital superintendent, or an aroused member of the legislature were involved. On one occasion reported, the controversy became particularly bitter: communities took sides, participants were charged with incompetence and bias, and public threats of reprisal and removal from official positions were made. While such opposition sometimes delayed the closing or conversion of a facility, it did not eliminate the underlying reasons for the original proposal and, in the instances reported, the hospitals eventually closed.

Except for those persons whose jobs or relatives were affected by the outcome, few people in a community became directly involved in attempting to prevent the closing or conversion of the local tuberculosis hospital. Occasionally, a local tuberculosis hospital auxiliary or a tuberculosis association actively opposed the change. With few exceptions, newspaper editorials displayed fairly dispassionate attitudes toward the issue—sympathetically recognizing the contribution the hospital had made to the health and economy of the community, while stressing the difficulties of maintaining quality care at reasonable costs in the face of declining occupancy rates.

Active or open opposition by medical superintendents rarely occurred. While many of them were personally opposed to changing the functions of their hospitals, they did not seek public support for their position. Some, while emotionally in favor of continuing the hospital, recognized the validity of the justification for closing or converting it. Others had reached retirement age and were not personally involved in the outcome. A number of the superintendents said they were reluctant to become directly involved in a controversy for fear it might jeopardize their chances of finding another job if the hospital closed. Some hoped to remain as superintendent of the converted facility or to be employed in a similar capacity in some other health facility operated by the community or the State. In a few instances, States sought to avert potential opposition by assuring the superintendents in advance that they would be employed in comparable jobs at approximately the same salaries after the hospitals closed or converted.

Faced with the necessity to close or convert certain facilities, States and communities dealt with the problem of superintendents nearing retirement age in several ways. Some simply postponed for a few years the decision to close or convert. Others, rather than continue to operate a low-occupancy, uneconomic facility, closed the hospital and appointed the medical superintendent director of the local tuberculosis control program with responsibility for the outpatient treatment clinic in the district formerly served by the hospital. More often, the superintendent remained as head of the converted facility.

Generally, local medical societies did not become actively or directly involved in the problems of the tuberculosis hospitals. They have, however, supported measures to free acute beds in general hospitals by transferring indigent chronic patients to partially converted tuberculosis hospitals. In one locality, however, the county medical society resisted a plan to have private, chronic disease patients treated by the full-time medical staff of a partially converted county tuberculosis hospital. Although paying tuberculosis patients had always been treated by the medical staff of the hospital, a compromise was reached whereby paying chronic disease patients were to be treated only by their private physicians.

Partial Conversions

The dominant pattern of circumstances and problems leading to the partial conversion of tuberculosis hospitals appears to differ somewhat from that of hospitals which closed or completely converted. While the hospital might have been providing tuberculosis services for over 30 years, the building chosen for partial conversion was often comparatively modern and in good physical condition. The total hospital had a larger bed capacity than those which closed or completely converted and, generally, although not always, was more

conveniently situated near a population center. As tuberculosis occupancy rates declined, the hospital evolved gradually into the treatment of increasing numbers of patients with nontuberculous pulmonary conditions, including lung cancer and emphysema. Several years might have passed after it first began frankly accepting nontuberculous patients before formal approval was given to the practice by the State or local government.

Some factors leading tuberculosis hospitals to partially convert were similar to those which influenced others to close or completely convert. In some areas, general hospitals lacking space for their acute patients transferred their excess chronic disease patients to the empty beds in tuberculosis hospitals. In localities where this pattern of care was established formal recognition of the practice was obtained later with little difficulty. The ability of a tuberculo: hospital located in a relatively isolated area offer well-qualified professional personnel a modern well-equipped surgical facilities superi to those available in the county general hospit generated community support later for i partial conversion to a chronic disease a rehabilitation facility.

Because partial conversion of a tuberculo: hospital ordinarily required considerable r modeling of a portion of the existing facilitie strong financial backing from the communi was essential. Hospitals which partially co: verted often were headed by men who h spent considerable time developing detail plans for undertaking new activities and wh were able to command the enthusiasm a financial support of the community.

Chapter III

Planning Principles

MUCH OF THE UNCERTAINTY surrounding the closing or complete conversion of tuberculosis hospitals during the last decade could have been avoided through timely planning. Each year, as more tuberculosis hospitals close their doors or establish programs for the care of nontuberculous patients, the need for planning becomes greater. While a few States and communities have devoted considerable effort to evaluating their programs, developing new patterns of services, and devising ways to adapt existing facilities to the major changes occurring in the tuberculosis field, no overall attention has been directed to the problem. As a result, serious imbalances in tuberculosis programs have developed; costly, inefficient facilities have continued to operate; major gaps have arisen in clinic services; and the provision of high-quality tuberculosis care has become increasingly difficult.

The lack of comprehensive, unified planning is, in part, a reflection of two factors which should be given serious consideration in all planning efforts: first, at both State and local levels there often exists an organizational division of responsibility for tuberculosis control and tuberculosis hospitals; second, most tuberculosis hospitals are locally owned and, therefore, not subject to direct State control. The establishment in recent years, however, of areawide health facility planning agencies in some of the larger metropolitan areas has stimulated efforts toward local tuberculosis facility planning. These agencies with governing bodies composed of outstanding community leaders, assisted by technical committees, evaluate existing health and medical resources within a designated geographical planning area, define the need for additional services, and develop recommendations for action to provide appropriate health facilities and services. Such planning groups are of particular value because of their interest in the development of coordinated plans encompassing the whole range of health facilities in an area, including tuberculosis hospitals and clinics.

If a State or community, therefore, intends to participate actively in shaping the future direction of its tuberculosis program, it must accept responsibility for the initiation and conduct of comprehensive health facility planning. It should also recognize the importance of involving early in the planning process those who will be most able later to implement the plans. Such planning should provide a balanced system for the use of available facilities, replacement of certain obsolete tuberculosis hospitals, an integration of tuberculosis control and clinic services with inpatient hospital treatment, coordination with other health programs, and a specific program for the consolidation or conversion of surplus tuberculosis facilities.

Planning for tuberculosis services and facilities should take into consideration the following principles:

Planning

1. Tuberculosis programs must be functionally coordinated to assure a balanced pattern of tuberculosis facilities and services covering all areas of the State.

As the number of tuberculosis hospitals lessens, greater emphasis must be concentrated on achieving a balanced distribution of the remaining facilities and services to assure adequate care and treatment to residents in all areas of the State. Similarly, a tuberculosis hospital's responsibility for the treatment of a patient should be geared to the corresponding duties of the local health department for case-finding and followup. The various tuberculosis agencies and groups should strive to coordinate their activities in order to maintain an interrelated network of facilities and services.

2. Planning of facilities for the care of the tuberculous patient should be integrated and coordinated with the planning of other health facilities.

To promote effective utilization of facilities and high-quality patient care, planning for tuberculosis facilities and services should be integrated with planning for other types of health facilities. Decisions, for example, to replace a physically inadequate tuberculosis hospital by constructing a new unit adjacent to or as a part of a medical center complex,[1] or to use empty beds in a tuberculosis hospital to treat long-term, chronic patients can be made realistically only within the framework of the total health needs and plans of a community. Coordinated planning can provide the basis for the joint use among hospitals of scarce specialized professional staff in the fields of thoracic surgery, physical medicine, and psychiatry, and for the sharing of laboratory facilities and diagnostic equipment. The need for such planning becomes more evident as an increasing proportion of the total cases of tuberculosis are found among persons in the older age groups who usually require a variety of services and professional skills not routinely available to most tuberculosis hospitals.

3. Coordinated health facility planning should be the product of the interaction of State and local or areawide planning efforts.

Because of the impact any change in the status of a local tuberculosis hospital can have on the statewide pattern of services, close coordination of all local or areawide planning with State planning is essential. In most States, the existing, unbalanced distribution of tuberculosis facilities and services calls for State-level planning. But, to be an effective instrument for reshaping tuberculosis program activity in the State, such planning must be based on an intimate knowledge of local needs and resources. Thus, all relevant background material and recommendations bearing on tuberculosis facilities prepared through local planning efforts should be incorporated in State plans when appropriate. Areawide planning agencies must give special attention to study[illegible] in rel[illegible] area. [illegible] health groups and planning agencies in the community should be established to maintain complete familiarity with planning efforts having implications for tuberculosis programs.

4. A planning group should establish both short- and long-term objectives which will be evaluated periodically and adapted as changing circumstances require.

In developing detailed proposals for action, the planning group should separate long-range goals from specific objectives to be achieved within the near future. Inventorying resources

[1] As used in this report, a medical center complex is a cluster of medical and related health service facilities in a large population center, located in close proximity to each other so as to facilitate the exchange of ideas, professional skills, and services. It includes a large general hospital with approved intern and residency programs, clinical and basic research laboratories, and a full range of outpatient diagnostic and treatment clinics. In addition, other types of health and auxiliary service facilities, such as nursing homes, rehabilitation centers, tuberculosis and chronic disease hospitals, and day centers for the aged, can be found there.

identifying unneeded tuberculosis hospitals, establishing the chronological order and manner in which such facilities should close or convert, determining the amount of new construction and remodeling needed, and developing more desirable patterns for financing tuberculosis care are among the more immediate planning tasks. A broad framework of proposals for long-range development, which is sufficiently flexible to adapt to future needs, should also be established. The Arden House conference recommendations, for example, looking toward the total eradication of tuberculosis as a public health problem, could serve as a basis for such a series of long-range proposals.

At both the State and local level, machinery must be established which will permit a periodic review of the factors affecting the course of the tuberculosis program. Areawide planning agencies are best equipped to perform this job locally. At the State level, a single agency or a special committee should be charged with this responsibility. As the various short-term objectives are achieved, new ones should be chosen. When changing circumstances call for new approaches, the agencies should be alert to the need to adjust their plans accordingly.

5. Compilation of factual background information on the nature and scope of State and local tuberculosis programs should be an essential element of tuberculosis facility planning.

The success and acceptability of tuberculosis facility planning will depend to a large extent on how well the planning goals reflect a precise understanding of the special circumstances affecting each area of the State. Although all the information desired for such planning may not be available in some areas, efforts should be made to gather data covering the following: (*a*) trends in the incidence and prevalence of the disease, the volume and effectiveness of casefinding activity, and the types of conditions of patients under treatment; (*b*) legal and financial factors affecting the choice of alternatives available to a particular area; and (*c*) architectural and engineering evaluations of existing State and local tuberculosis facilities.

Evaluation

6. Evaluation of the clinical, administrative, architectural, and engineering aspects of each tuberculosis hospital is an essential step in determining its future role in a statewide pattern of services and facilities.

The potential of each hospital for the continued provision of tuberculosis services or for conversion to some other health purpose must be documented and evaluated early in the planning process. Such an evaluation should include: (1) a survey of the physical structure, and (2) a review of the medical status of the patients in the hospital and of the care provided. A team of experts in tuberculosis care, hospital construction, and operation should survey each existing tuberculosis hospital.

Persons of high professional competence should be requested to conduct these surveys and, preferably, should be nonresidents with no personal involvement in the future of the hospitals visited.

7. Tuberculosis hospitals with declining occupancy rates can be partially converted for the care of nontuberculous conditions if the facilities can be adapted or modernized to meet current physical, functional, and medical care standards.

Partial conversion occurred in a high percentage of the larger tuberculosis hospitals which closed or converted. Whenever feasible, unused tuberculosis beds in such hospitals can be converted for use by chronic disease patients, including patients with chronic, nontuberculous respiratory diseases. Partial conversion offers, in some instances, a practical bridge whereby a hospital can move into other health fields while continuing to meet a State's or a community's obligations to its tuberculosis patients. It also presents an opportunity for some States or communities to relieve the pressure to provide other types of inpatient

facilities without incurring the costs of new construction.

The decision to partially convert should be made, however, only if the facility is structurally capable of being adapted to its new functions at a reasonable cost. The converted facility must be able to make a positive contribution to community health programs and to offer to its tuberculous and nontuberculous patients the range of services, the necessary staff and equipment, and the level of professional skills currently demanded by good medical and hospital practice. Specifically, the converted hospital must be able to insure that an active group of consultants, such as physiatrists, urologists, cardiologists, dermatologists, surgeons, and psychiatrists, will be available regularly to provide necessary care and supervision. In this respect, formal affiliation with a teaching hospital may be desirable. Medical schools, in light of their responsibilities to the community, should make particular efforts to provide consultant services to these institutions.

A standard which might be employed when deciding for or against partial conversion is whether the converted facility could be accredited by the Joint Commission on Accreditation of Hospitals.

In most circumstances, it would be inefficient and uneconomical to attempt to provide the minimum complement of professional staff and the variety of laboratory services needed today in a separate hospital of less than 150 beds. If the hospital is part of a medical center with opportunities for the joint use of staff, services, and facilities, its bed size may be smaller. In any event, partial conversion should not be attempted unless the tuberculosis patient load is expected to remain large enough to justify the cost of separate, specialized professional staff and services.

Complete conversion would appear to be a suitable alternative when the declining tuberculosis patient load will not justify partial conversion or when other tuberculosis facilities are available. As in the case of partial conversion, the major consideration other than the physical condition of the facility is whether the converted facility can provide staff and services appropriate to the needs of the patients.

8. Hospitals which are uneconomical to operate because of their size or which are functionally or physically obsolete should be abandoned and not converted to some other type of inpatient health facility.

A tuberculosis hospital which is uneconomical to operate because of its size or which is structurally or functionally inadequate by generally accepted standards should discontinue the treatment of tuberculosis as soon as possible. Unless it can be modernized at reasonable cost, it should not be used as any other type of inpatient health facility. Some obsolete tuberculosis hospitals are able to maintain high standards of care despite poor functional arrangements but at excessive cost resulting from the larger number of staff needed to operate the facility.

Under no circumstances should an obsolete tuberculosis hospital be converted to a community dumping ground for the senile, incontinent, or terminal patient. If the facility cannot be modernized to meet current standards and to provide acceptable care, it should be abandoned or used for some nonhealth purpose.

The decision to continue tuberculosis units in prisons and mental hospitals should be based primarily on whether patients receive quality care under competent professional supervision. If this is lacking, arrangements should be made to transfer patients to tuberculosis facilities where they can be properly treated.

gram in the State. Tuberculosis hospitals which are providing quality services in functionally satisfactory surroundings could be designated as focal points for the provision of services as other hospitals close or convert. Similarly, when it is considered desirable and in accordance with the overall plan, these hospitals can be enlarged or modified to take on added responsibility in the treatment of tuberculosis or other chronic pulmonary diseases.

Construction

10. Many existing tuberculosis hospitals which are structurally and functionally obsolete should be replaced by new buildings.

Many States contain tuberculosis hospitals over 30 or 40 years old which should be replaced. While some of these hospitals are operating at full capacity and performing an important function, they are becoming less able to provide their services satisfactorily.

In several States, a number of smaller, older tuberculosis hospitals operating at low-occupancy levels could close down or completely convert without much difficulty if a modern, well-equipped facility were constructed to accept their tuberculosis patients. A few of the larger general hospitals could be remodeled to include tuberculosis units able to provide services to a particular region of the State. In a State with a system of locally owned tuberculosis hospitals, one or two of the most modern could be designated to receive tuberculosis patients from other areas of the State. Provision could be made to assist them through State grants or loans to expand, remodel, or replace their present facilities. If communities are unable to assume this task, the State should undertake to replace obsolete facilities.

11. All new tuberculosis hospitals should be constructed as elements of regional medical centers in order to provide access to other specialized facilities, to encourage interchange of medical staff, and to assure economical conversion of the hospitals to other health purposes should the need arise.

Plans for the construction of a new or replacement of an existing tuberculosis hospital should specify that it be located in close proximity to or be an integral part of a medical center complex, unless there are compelling reasons for it being located elsewhere. It may, however, still be owned and operated independently. The close association with other medical facilities will provide greater opportunities for joint use of professional staff and services, thereby assuring better quality care for the patient and more economical operation of the hospital. Today, for example, because a growing proportion of the tuberculosis patients are in the older age groups, they more often need a greater variety of specialized treatments for nontuberculous conditions than in the past. As a unit within a complex of medical facilities, the tuberculosis hospital could more readily call on the skills of a number of specialists to treat its patients. The close relationship could also induce more professional medical staff to take part of their residency training at the tuberculosis hospital.

In addition, the possibility of further declines in tuberculosis hospital occupancy levels in many areas of the country suggests the merit of locating such hospitals within a medical center complex where they could be readily adapted and staffed to care for other health conditions.

For the addition of a tuberculosis unit to a general hospital to be an appropriate and economic way for a community to care for its tuberculosis patients, the hospital should be part of a complex of health facilities serving a particular region in the State. Therefore, only the larger general hospitals, usually located in our major urban areas, might be expected to establish their own units. Although available data do not permit precise analysis, there appears to be no evidence, thus far, to support the view that there is a trend toward the treatment of tuberculosis patients in general hospitals.

Outpatient Care

or outpatient care should be a balanced pattern of diag-, and followup services te.

linic treatment and follow- the responsibility of the al. Upon its closure, these discontinued. Establish- he State of a balanced pat- clinics must, therefore, be ideration at the same time the consolidation of tubercu-

y planning agencies should sed responsibility of local s to provide clinic programs se formerly offered by the als. In those areas of the l health departments, steps provide necessary tubercu- es on a continuing basis. tpatient clinics operated by tals not marked for closure uld be expanded and their l to provide treatment to the r region of the State. Be- ide character of the problem, epartment should accept pri- y for insuring the availa- t services.

13. Training of private and public health physicians in the latest techniques of tuberculosis therapy, especially in areas formerly served by tuberculosis hospitals, should be undertaken as an essential element in the overall State tuberculosis plan.

Upon completing the hospital phase of his treatment, a tuberculosis patient today will usually be expected to continue drug therapy under active medical supervision for about 18 months. Few private or public health physicians have had sufficient opportunity to keep abreast of recent developments in the treatment of tuberculosis. As the role of post-hospital care grows, therefore, training programs should be undertaken to help these physicians increase their knowledge and practical experience with the treatment of pulmonary tuberculosis. This is particularly important in areas where outpatient clinic services had been provided by tuberculosis hospitals which no longer exist. Details of current practices in chemotherapy could be presented by medical lectures and consultations with professional staff of tuberculosis hospitals. Emphasis should be placed on principles which will permit the physician to distinguish situations requiring immediate expert consultation from those which he can handle alone.

Personnel

nal staff of former tubercu- uld be fully utilized in other ties and clinics.

y physicians and nurses today in the field of tuberculosis. achieved in many phases of tuberculosis in recent years st young persons from enter- d the problem of providing ssional supervision in tuber- can be expected to grow as mployed retire or die. For these reasons, a special effort must be exerted by States and localities to make full use of all available trained personnel, especially those displaced by the consolidation or closure of tuberculosis hospitals. Measures to stimulate concentration of professional tuberculosis staff in the remaining tuberculosis hospitals with high patient loads and in the increasingly important outpatient tuberculosis clinics should be encouraged. The construction of tuberculosis facilities at medical centers with established residency programs might help to alleviate the shortage of trained personnel.

Implementation

15. Specific steps should be taken at an early stage of the planning process to implement proposed changes in tuberculosis programs as well as in State and local statutes, and to secure adequate and balanced sources of financing.

Specific methods for translating program proposals into concrete results should be given top consideration by all planning groups at an early stage of the planning process. Particular efforts should be given to formulating methods of enlisting public backing for (1) passage of legislation to remove existing statutory and financial barriers, (2) overcoming local resistance to program changes, and (3) enactment of measures assuring continuing, flexible financial support for both inpatient and outpatient tuberculosis services.

Chapter IV

The Planning Process

THE WAYS in which States and localities devise new patterns of tuberculosis services and facilities will vary according to the complexity of the problems in each State. The declining number of tuberculosis hospitals, their scattered locations, and the varied responsibilities of political subdivisions indicate that planning adequate and high-quality care for tuberculosis patients today requires active leadership by the State in the planning process. While the problem of integrating these hospitals with other health facilities, especially in large metropolitan areas, ordinarily will be the responsibility of the local health facility planning agency, a State authority should be established to assess needs and make recommendations regarding the development of a balanced pattern of facilities and services throughout the State.

ORGANIZATION FOR PLANNING

State Planning Group

The Governor of the State should assume primary responsibility for initiating comprehensive statewide planning for tuberculosis facilities and services. Either of the following suggested methods of accomplishing this objective would be satisfactory:

(1) He may designate a specific State agency to be primarily responsible for this activity and appoint an advisory committee to the agency. Members of the advisory committee should be broadly representative of the principal public and private agencies and organizations concerned with the future of the tuberculosis program in the State. The committee membership should include representatives of the State health department, the welfare department, and the agencies responsible for the State Hill-Burton program and for operation of the State tuberculosis hospitals when these agencies are not a part of the major departments. In addition to State agency representation, persons selected by the Governor should include top community leaders, as well as county commissioners; members of areawide planning agencies, medical societies, and voluntary tuberculosis associations; and superintendents, medical directors, and trustees of hospitals. Committee members would not be selected to present the official views of their organizations, but rather to contribute their experience and knowledge to the group. No more than half of the total committee membership should be composed of professional health workers; or

(2) He may appoint a special group charged with the responsibility for planning tuberculosis facilities in the State on a continuing basis. The composition of such a group should be similar to that suggested above for the advisory committee.

Whether the planning body is designated in accordance with either of these proposals or in accordance with some other plan, an expert pool of professional judgment should be main-

tained either within the membership itself or by the maintenance of appropriate technical advisory committees. These committees would furnish consultation and advice in specific areas as needed.

Local Planning Group

In a community with a well-organized areawide health facility planning agency,[1] a technical advisory committee should be appointed to assist the agency in considering all aspects of the tuberculosis problem. The committee will give a planning agency the benefit of its perspective and its specialized knowledge of the status of tuberculosis services and facilities in the area.[2] The planning agency, in turn, will review local tuberculosis program needs and submit its recommendations to the State planning group. In the absence of a local planning agency, action should be taken by community leaders to establish a group responsible for surveying the local tuberculosis problem and submitting its report and recommendations to the State planning group. Particular attention would be directed to devising ways of achieving statewide objectives within the framework of community needs and circumstances.

Planning Objectives

The primary objectives of a statewide tuberculosis planning group should be to: (1) recommend a comprehensive program for reordering the pattern of tuberculosis facilities and services in the State; (2) translate these broad program elements into specific community goals; and (3) establish methods and a timetable for bringing about necessary change.

To achieve its objectives, the planning group will probably

Recommend the establishment of a system of inpatient tuberculosis facilities complemented by a statewide pattern of outpatient diagnostic and treatment clinics.

Develop short- and long-range proposals for

(1) Phasing out inadequate tuberculosis hospitals,

(2) Designating those which can be expected to continue to provide quality care,

(3) Converting excess acceptable tuberculosis beds to other health purposes, and

(4) Providing more adequate support for out-of-hospital services.

Determine the location and cost of all needed construction and replacement.

Identify legislative changes and financial arrangements which will facilitate

(1) Construction or replacement of needed tuberculosis facilities,

(2) Termination of tuberculosis services in designated hospitals,

(3) Improvement of services in existing tuberculosis hospitals and clinics,

(4) Conversion of unneeded tuberculosis hospitals to the care of other health conditions,

(5) Use of funds appropriated for tuberculosis hospitals for diagnostic and treatment clinics and control programs,

(6) Provision of funds for the treatment of patients with nontuberculous pulmonary diseases.

Formulate a program for implementing planning proposals.

[1] The functions of an areawide health facility planning agency usually include evaluating existing health and medical resources within a designated geographical planning area, defining the need for additional services, and developing recommendations for action to provide appropriate facilities and services.

[2] See item 15, selected bibliography, app. C, p. 46, for a more detailed discussion of the role of the technical advisory committee.

Survey of Programs and Facilities

The extent to which the staff of the State planning body will be required to review and inventory local tuberculosis programs and facilities will vary from State to State depending on the number, variety, and size of the tuberculosis programs, the facilities involved, and the extent of community interest and activity. Where communities study their own tuberculosis programs, the State can offer guidance and consolidate their findings and recommendations in the State plan. Local survey efforts can also be encouraged through the provision of appropriate technical assistance by the State.

All State tuberculosis planning groups should establish uniform procedures and techniques for evaluating tuberculosis programs and determining future needs. Such procedures would permit valid comparisons of services and facilities, and enable States and communities to weigh the relative effectiveness of their programs.

Survey Procedures

Specific program considerations and technical details for conducting areawide or community health facility surveys are described in the areawide planning manual prepared by the Public Health Service.[3]

Major steps to be followed by a survey group include

Collection, tabulation, and analysis of data.

Administrative, architectural, and engineering evaluation of all tuberculosis facilities.

Development of proposals based on an evaluation of the program.

Preparation of recommendations for implementing proposals—outlining the principal tasks to be undertaken, and how they are to be accomplished, including an analysis of alternate ways of providing and insuring continuity of care, the manner in which care is to be provided in the future, and the timing involved.

Since most routinely collected statistical data will not reflect significant variations in the range and quality of services among tuberculosis hospitals, it would be desirable to arrange for outside experts familiar with the levels of services provided in high-quality tuberculosis facilities throughout the Nation to assess the qualitative aspects of each local program.

Legal and financial limitations on the operating flexibility of tuberculosis programs should be documented. The effect, for example, of existing State legislative and regulatory restrictions on the uses to which a converted hospital can be put should be thoroughly evaluated. Similarly, the types of public financial assistance available for the care and treatment of different diseases should be explored. Particularly in the legal and financial areas, areawide planning agencies or local committees should work closely with the State planning group to prevent unnecessary data collection and duplication of effort.

Determining Status of Existing Hospitals

Both State and local planning groups should devote considerable effort to assessing and preparing recommendations with respect to the closure and conversion of tuberculosis hospitals. One of the most difficult tasks will be designating those tuberculosis facilities which should discontinue the treatment of tuberculosis. Equally difficult will be determining whether a particular tuberculosis hospital should convert a portion of its beds to the care and treatment of some other type of patient, or completely discontinue the treatment of tuberculosis. Survey data, plus information obtained from the State agencies and outside consultants, should provide an authoritative basis for deciding these questions and for establishing a timetable of closures and conversions.

The planning group might wish to make one of the following recommendations with respect to a hospital: (1) continue as a tuberculosis hospital; (2) partially convert; (3) completely convert; (4) close; or (5) replace the facility.

In some instances, the poor structural condition of the hospital, the deteriorated state of the equipment, and the functionally obsolete design clearly will suggest its early closure,

[3] Op. cit.

whether or not it is being fully utilized. For other hospitals, the planning group must still determine whether a given facility should continue as a tuberculosis hospital, and if so, whether it needs modernization. Whenever a tuberculosis hospital is not being fully utilized the planning group must decide whether the hospital should discontinue all treatment of tuberculosis or merely use the excess beds for the treatment of other illnesses.

Factors Influencing Future Role

Health Status and Characteristics of Patients

For each tuberculosis hospital, information should be gathered on the health status of the patients. This will include the diagnosis and severity of the disease, the degree of communicability, social characteristics of the patients, average length of stay, extent of the need for institutional care, and the number of nontuberculous chronic disease patients treated in each of the facilities. These data will help determine the present need, degree of utilization, and the adequacy of the present hospitals and suggest the extent of the future need.

To acquire this and other relevant data on services available and the quality of the treatment programs, it may be necessary to arrange for a team of nonresident tuberculosis experts to evaluate all tuberculosis hospitals in the State. To insure comparability of results, the planning group should develop principles and guidelines for evaluation applicable to all facilities studied. The conclusions of the team with respect to the relative need for each facility would be submitted for the consideration of the planning group, which would then weigh the experts' findings along with other available facts when preparing its recommendations.

Construction Needs

Many States do not have a modern tuberculosis hospital offering the range of services and equipment required for today's patients. When developing the proposed pattern of facilities for a State, therefore, the need for new construction, replacement, or additions to general hospitals must be fully documented. Construction of a tuberculosis facility as part of a medical center complex, to replace a number of smaller tuberculosis hospitals, probably would result in more efficient use of staff and money. Facility requirements for modern treatment may also be economically met in some instances by remodeling or renovating existing tuberculosis hospitals.

Alternate Sources of Inpatient Care

After the overall needs for the State have been considered, the role of each of the tuberculosis hospitals designated to continue to provide services should be clearly identified in the plan. Where locally owned hospitals are involved, prior agreements should be made whenever possible among the several communities affected and with the State to assure that every patient will be eligible for treatment at a nearby hospital, or a hospital of his choice.

Availability of Diagnostic, Treatment, and Followup Clinics

As an increasing proportion of inpatient tuberculosis treatment is offered in a smaller number of central facilities there is a correspondingly greater need for diagnostic, treatment, and followup clinics strategically located throughout the remainder of the State. Location of such clinics in areas formerly served by tuberculosis hospitals which have since closed or converted should be considered. In States with well-developed local public health systems, major emphasis can be placed on redelineating tuberculosis clinic areas and on an intensification in the range, quality, and availability of the services provided. In States with inadequate clinic programs, the planning group should outline practical steps to achieve state-

wide coverage of tuberculosis outpatient care. In many areas, tuberculosis clinics are being located in the outpatient departments of general hospitals. Effective communication between the tuberculosis hospital and the clinic services of the general hospital and the local health department is essential to assure provision of balanced tuberculosis services.

Condition of the Facility

Some of the more important factors which must be considered in determining the potential of a tuberculosis hospital for modernization or conversion are: fire safety and the extent of alterations required, if any, to meet modern safety codes and standards; degree to which the structural design and functional layout of the departments may be effectively modernized or may be converted for other purposes; estimated costs of bringing the facility up to modern standards; comparison between the estimated total capital investment after making improvements in the hospital and the estimated replacement cost for a comparable new facility.

Overall Economy of Operation

An important consideration in determining the future status of a tuberculosis hospital is whether the volume and quality of service provided justifies continued financial support by the community. The question is equally relevant when it involves the continuation of State aid to a locally owned tuberculosis hospital. In many States, local tuberculosis hospitals depend on State financial assistance and might be forced to close if it were withdrawn.

Almost all hospitals have experienced sharply rising per diem costs in recent years. This general phenomenon is especially evident in many tuberculosis hospitals because of their declining patient loads and lower occupancy rates. Because of the great variations in the scope and quality of services found in tuberculosis hospitals, a planning group should attempt to compare per diem costs only if they can be related to specific units of service offered in each hospital. Of equal importance in evaluating a tuberculosis facility is the extent to which the functional arrangement of the building may affect the cost of patient care.

Legislative and Financial Requirements

During the last 50 years, many States and communities have developed complex legal structures governing the operation and financing of tuberculosis programs. Some of these provisions, in the present period of rapid program change, unnecessarily restrict State agencies and communities in adapting their activities to current needs. A major undertaking of a planning group should be the review, in cooperation with the State's attorney general, of all legislation affecting tuberculosis programs in the State and the formulation of suitable legislative proposals to implement program plans of the group.

The review should include an assessment of existing legislation which may limit authority to terminate tuberculosis services in designated facilities, to construct and finance tuberculosis hospitals and clinics, and to use operating funds for the care of patients suffering from diseases other than tuberculosis.

Location of the Facility

Tuberculosis hospitals, especially those located outside metropolitan areas, have difficulty attracting or retaining qualified professional staff. These persons are more often inclined to practice their specialties in urban areas with access to modern facilities offering opportunities for further education and professional growth. In addition, location is no longer recognized as a significant factor in the treatment of tuberculosis. For these reasons, the pattern recommended by the planning group should reflect, to the extent possible, the desirability of locating tuberculosis facilities in a metropolitan area, as part of a medical center, so that care of the tuberculous patient can be integrated into the community's overall medical services.

Estimating Tuberculosis Bed Needs

While the problem of estimating how many fewer beds will be needed in the future is unique to tuberculosis facility planning, it does not affect the application of the same basic techniques used in making bed estimates for other types of health facilities. It does, however, require that projections be interpreted with care and modified as changing circumstances demand. Advances in chemotherapy; decreased in-hospital treatment time; quicker, more specific laboratory procedures; and changes in the extent to which patients are treated in other types of facilities or as outpatients must all be considered when determining future bed needs. The utility of projections of future bed needs is also influenced by the extent to which past and present admission data represent the actual need for tuberculosis beds. Admission data used in such projections should, therefore, be modified by clinical information on the health status of patients in tuberculosis hospitals. A suggested statistical methodology for estimating tuberculosis bed needs is outlined in appendix B.

Chapter V

Implementation

SUBMISSION OF RECOMMENNATIONS to the Governor or to local authorities is but one etep toward revitalization of a Stato's tuberculosis program. Tho ultimato euccoss of a planning effort must be guaged by the extont to which recommendations aro translated into action and by the continuity achieved in planning activitics. Early in tho planning proccss, tberofore, a planning group should identify the obstacles hindering redirection of the program, and doviso suitablo techniques for overcoming them. After submitting its report, a planning group should work for accoptance of its proposals by interpreting them to the legislature, the public, and to local officials. While the barriers will differ according to the history and pattern of tuberculosis services in each State, certain legislative, financial, and organizational problems are common to most States. Those most ofton encountered are discussed below.

BARRIERS TO CHANGE

Legislative

Opportunitics for tuborculosis hospitals to adapt thoir servicos to changing demande differ from State to Stato. Major changes in tho etatus or function of local tuberculosis hospitals aro not permittod in some States without consent of tho logislature, while in others, localities have almost complete autonomy. Tho typos of hoalth facilitics to which a tuberculosis hospital may convert in one State will be carefully epecified by law, while in another tho dccision will be loft in local hands. In some States a tuberculosis hospital is without authority to treat nontuberculoue pationts. Communitics in otber States have been specifically authorized to partially convert thoir excess tuberculosis bods for the troatment of other health conditions.

State laws, which are seldom broad enough to oncompass the range of approaches dictated by contomporary community nceds, should be amended to increase the discretion of communities in such matters so long as they conform to the broad objectives of the tuberculosis program plan. This would help preservo the balanced pattern of services called for by a tuberculosis planning group while retaining flexibility in the choices available to a community.

Legislative authorization may be needed to finance the operation of a tuberculosis hospital serving two or moro counties, although in some States arrangements can be worked out by agreemeut without formal authorization. Legislative approval may also be required before a State may contract for tbe care of its residents with a tuberculosis hospital in a neighboring State.

Local decicions regarding the future of tuberculosis hospitals are affected not only by State laws but by the varying regulatory standarde prescribed by the eeveral State agencies. A facility approved for operation as

a tuberculosis hospital by the State health department may have to meet different requirements of the State welfare department if it is to be operated, for example, as a facility for the mentally retarded. This problem can be complicated further in the case of a partially converted tuberculosis hospital in which the part of the facility for tuberculosis care must meet the requirements of the health department and the remainder may fall under the jurisdiction of the mental health or the welfare department, or both. Potential conflicts in procedural and building standards should be reconciled whenever the differences among State agencies are not justified by actual variations in program requirements. State agencies should seek to agree on a uniform set of standards and principles for the construction of such facilities. Successful conversion of a tuberculosis hospital will be more easily accomplished if pertinent regulations and other program and facility requirements are reviewed and tentative approval of the proposal is obtained from interested State agencies before final plans are made.

Financial

Over the years, distinct categories of public funds have evolved which often prevent, for example, the use of tuberculosis hospital appropriations to finance the treatment of tuberculosis in a general hospital or at a health department clinic. This financial rigidity has thwarted efforts of some communities to adjust their tuberculosis programs to new patterns of treatment and diagnosis.

The outpatient phase of the treatment of tuberculosis, although less costly than the inpatient phase, has not received comparable financial support. Thus, funds appropriated for inpatient care are seldom shifted to clinic services when a tuberculosis hospital closes or converts. The undoubted success of the antibiotics appears to have lulled many into believing that tuberculosis no longer represents a serious threat to public health, and has led some legislatures and local governments to minimize the importance of continued support for outpatient tuberculosis services. In fact, tuberculosis still is a highly infectious disease, and, as a smaller percentage of the total treatment time of the patient is spent in hospitals, the need for outpatient treatment services grows. Flexibility may be introduced in some local programs by legislation permitting the transfer of funds appropriated for inpatient hospital care to tuberculosis clinic and control activities, or the use of special tuberculosis hospital tax levies for all authorized tuberculosis programs.

The recovery of most tuberculosis patients depends to a great extent on the maintenance of a controlled drug regimen after their discharge from the hospital. If the drugs are no longer easily available, it is likely that treatment will cease and the patient will relapse. The fact that an increasing percentage of the patients today are alcoholic, socially displaced, and indigent, suggests that few of them would on their own initiative purchase the necessary drugs and services. Efforts should be made, therefore, to insure that all patients requiring inpatient or outpatient treatment receive it without regard to their ability to pay, and that the provision of such care is considered primarily as a public health rather than a public welfare responsibility.

The closure or complete conversion of some tuberculosis hospitals with clinic services has forced many outpatients to travel extreme distances to continue their treatment. Cooperative agreements should be developed by neighboring communities or counties to jointly finance clinic services when it is not practical or feasible for one to provide them. When such cooperative action is not possible, the State should organize and conduct the clinics, since statewide coverage of outpatient treatment services is essential.

Personnel

The scarcity of trained professional staff in the tuberculosis field is expected to become more severe in the years to come. Often in the past, professional staff in tuberculosis hospitals were former patients who remained in the field. Today, relatively few enter by this route. In recent years, many tuberculosis hospitals, as well as community general hospitals, have come to depend on foreign physicians to complete their staffs. In addition, many professionals working in tuberculosis hospitals with declining

patient loads are unable to make full use of their specialized training and experience. Factors such as the isolated location of some hospitals, and retirement systems which inhibit free movement of professional staff among cities and States, also contribute to the difficulty of obtaining experienced personnel.

Some States and communities have made special efforts to take advantage of the training and experience of former hospital personnel in other tuberculosis activities. In the absence of some overall plan for future use of tuberculosis hospitals in a State, however, there is no way of predicting whether the hospital to which a staff member has transferred will be in operation the following year. The present uncertainty surrounding the future of many tuberculosis hospitals, and the accompanying lower morale among their staffs, can be partially alleviated by the promulgation of a plan identifying those hospitals in the State which are expected to continue to provide tuberculosis care and the chronological order in which the others will be phased out. This would reassure staff who had been planning to seek more permanent or predictable employment and grant others sufficient time to transfer to different positions in the tuberculosis field.

The Council on Medical Education of the American Medical Association should seriously consider resuming its program of inspection and approval of hospitals for residency training in the subspecialties of internal medicine. Approval of certain tuberculosis hospitals for residency training could serve as a valuable indicator of the quality of patient care provided and as a guide to residents seeking training in the treatment of tuberculosis.

Obsolete Facilities

Most older tuberculosis hospitals serve as vivid reminders of the revolutionary advances medical science has made in the last 30 years. When built 30 or 40 years ago, they were designed and constructed to reflect the then-prevailing theories of good medical practice. Today, functional and structural obsolescence is one of the major factors limiting the future uses to which they can be adapted. Remodeling a hospital can be a costly venture unless the original design made provision for possible conversion. Costs of converting to a nursing home, however, will ordinarily be lower than converting to a general hospital.

In the face of a continuing decline in the demand for tuberculosis beds in most States, the need for construction funds to replace certain obsolete tuberculosis hospitals in areas of continued high tuberculosis incidence may not be immediately evident to some public officials. Stress must be laid, therefore, on the necessity to establish or maintain a tuberculosis facility in such areas which can provide quality services in an economical manner, and which can be adapted to other health functions when no longer needed for tuberculosis care.

Accomplishing Program Goals

Enlisting Support

A program calling for major changes in the established order will depend for its success, to a large extent, on enlisting the backing of those individuals representing the leadership of a community or State. Having such leadership represented on a planning group, for example, will simplify the later task of gaining acceptance of the planning recommendations.

In addition to this specialized support, a pervasive climate of understanding favorable to the recommended changes can be obtained through statewide dissemination of information documenting the facts and outlining the reasoning behind decisions affecting the future course of the tuberculosis program. Public understanding of the issues reduces opportunities for rumor and distrust and helps create a broad base of popular support essential for later implementation of specific recommendations. Particular attention should be given to accurately informing local public officials, community leaders, and other opinion molders about the issues involved, because their attitudes can significantly influence the fate of some proposals. For example, it could be explained that a tuberculosis hospital converted to some

other health use may employ more staff and generate more income in the area than at present, and also fill a major community need for other types of health facilities.

Informing the Public

Appropriate techniques for bringing this story to the people will depend on the size of the program, the number of facilities involved, and the amount of money available. Newspapers, television, and radio can be utilized through special news and feature stories about planning recommendations. The State may also wish to consider preparing brief explanatory pamphlets or brochures highlighting the principal recommendations and explaining how each community may help improve its tuberculosis program. These materials should be directed at local public officials, civic leaders, community health officials, and others who might be willing to actively support the proposals. All presentations should stress that tuberculosis is still a highly infectious disease which continues to represent a major threat to public health.

Written information will help put statewide needs and issues in proper perspective, but public hearings will probably be more successful in conveying the wisdom and necessity for specific recommendations. In some States, where there is considerable local concern or misinformation about the implications of proposals, it may be desirable to hold open hearings to answer questions on reasons for particular recommendations, to outline measures for maintaining continuity of care, or to describe the local economic benefits of the proposals.

To the extent possible, educational programs should be planned and carried out in collaboration with the State and local voluntary tuberculosis associations. The associations, through their boards of directors, medical associates, and professional and voluntary workers, can help assess local tuberculosis needs and assist in the implementation of planning recommendations. Their staffs are experienced in the use of health education techniques and materials and, because of their longstanding public identification with activities in this field, can speak with authority on tuberculosis problems.

State and Local Cooperation

One of the best guarantees of local support for proposed changes is active participation by a community in evaluating its tuberculosis program. This encourages greater involvement and understanding of the issues by those in the community most likely to uphold later recommendations for change.

In some instances, the final stimulus for closing or converting a local tuberculosis hospital may come from the State rather than the community. A State, for example, may set a cutoff date for granting State aid to local tuberculosis hospitals designated for closure or complete conversion. Where no system of State aid exists, tuberculosis hospitals may be encouraged to close or convert by initiating a grant program limited to those hospitals chosen to provide continuing, full-time tuberculosis services. Similarly, the elimination or significant reduction of all charges to patients at State-owned tuberculosis hospitals could stimulate consolidation of local hospitals marked for closure or conversion. Few communities would wish to finance inadequate local facilities when their residents could be assured of quality care in a State tuberculosis hospital at little or no charge to the patient or the community. A variation on this approach would be for the State to finance the construction of a separate tuberculosis hospital as part of a medical center and then transfer responsibility for its operation to the community.

Appendix A

BACKGROUND REFERENCE DATA

Tuberculosis: Dimensions, Facilities, and Services

Prepared by

U.S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE

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Appendix Table 1. Trends in New Active Tuberculosis Cases and Deaths, United States, 1955–61

Year	CASES			DEATHS		
	Number	Rate [1]	Decrease (percent) [2]	Number [3]	Rate [1]	Decrease (percent) [2]
1955	77,368	46.9	—	15,016	9.1	—
1956	69,895	41.6	11.3	14,137	8.4	7.7
1957	67,149	39.2	5.8	13,390	7.8	7.1
1958	63,534	36.5	6.9	12,417	7.1	9.0
1959	57,535	32.5	11.0	11,474	6.5	8.5
1960	55,494	30.8	5.2	10,866	6.0	7.7
1961	53,726	29.4	4.5	9,938	5.4	10.0

[1] Per 100,000 population.
[2] Percent decrease in rate from previous year.
[3] Data from National Office of Vital Statistics.

Source: Tuberculosis Branch, Communicable Disease Center, Public Health Service, U.S. Department of Health, Education, and Welfare.

Appendix Table 2. New Active Tuberculosis Cases, Deaths, and Population, by State, 1961

State	New reported active cases			Tuberculosis deaths			Population July 1, 1961 [3]
	Number	Rate [1]	Rank [2]	Number	Rate [1]	Rank [2]	
United States	53,726	29.4	—	9,938	5.4	—	183,043,000
Continental U.S.	53,167	29.2	—	9,892	5.4	—	182,146,000
Alabama	1,313	39.5	10	286	8.6	4	3,324,000
Alaska	255	108.1	1	19	8.1	6	236,000
Arizona	694	48.6	3	131	9.2	3	1,428,000
Arkansas	905	50.2	2	190	10.5	1	1,803,000
California	4,916	30.0	19	620	3.8	34	16,386,000
Colorado	306	16.6	38	71	3.9	32	1,841,000
Connecticut	325	12.7	44	105	4.1	30	2,559,000
Delaware	158	34.3	13	26	5.7	20	460,000
District of Columbia	513	65.9	—	102	13.1	—	779,000
Florida	1,359	25.9	23	220	4.2	29	5,246,000
Georgia	1,268	31.4	18	197	4.9	25	4,032,000
Hawaii	304	46.0	4	27	4.1	31	661,000
Idaho	82	12.0	45	18	2.6	44	685,000
Illinois	4,021	39.9	8	502	5.0	24	10,090,000
Indiana	1,152	24.5	28	267	5.7	19	4,693,000
Iowa	165	6.0	50	66	2.4	47	2,770,000
Kansas	240	10.9	48	57	2.6	45	2,195,000
Kentucky	1,257	41.1	7	307	10.0	2	3,061,000
Louisiana	1,055	32.2	17	238	7.3	9	3,279,000
Maine	159	16.1	39	36	3.7	36	986,000

See footnotes at end of table.

Appendix Table 2. New Active Tuberculosis Cases, Deaths, and Population, by State, 1961—Con.

State	New reported active cases			Tuberculosis deaths			Population July 1, 1961 [3]
	Number	Rate [1]	Rank [2]	Number	Rate [1]	Rank [2]	
Maryland	1,374	43.7	6	259	8.2	5	3,146,000
Massachusetts	1,275	24.8	27	304	5.9	16	5,139,000
Michigan	2,690	33.9	14	334	4.2	28	7,934,000
Minnesota	474	13.7	43	98	2.8	41	3,448,000
Mississippi	612	27.6	21	116	5.2	23	2,217,000
Missouri	1,092	25.2	25	287	6.6	13	4,325,000
Montana	103	14.7	40	25	3.6	37	700,000
Nebraska	160	10.9	47	37	2.5	46	1,462,000
Nevada	81	25.6	24	17	5.4	22	317,000
New Hampshire	86	13.9	41	13	2.1	49	620,000
New Jersey	1,658	26.9	22	391	6.4	15	6,155,000
New Mexico	329	33.3	15	68	6.9	10	989,000
New York	6,182	36.0	12	1,165	6.8	12	17,178,000
North Carolina	1,040	22.3	31	177	3.8	33	4,657,000
North Dakota	88	13.8	42	8	1.3	50	638,000
Ohio	2,503	25.2	26	468	4.7	26	9,931,000
Oklahoma	465	19.4	34	137	5.7	17	2,398,000
Oregon	425	23.2	30	59	3.2	38	1,835,000
Pennsylvania	3,732	32.9	16	881	7.8	8	11,356,000
Rhode Island	165	19.2	35	32	3.7	35	860,000
South Carolina	692	28.7	20	132	5.5	21	2,415,000
South Dakota	123	17.4	37	20	2.8	42	707,000
Tennessee	1,425	39.6	9	289	8.0	7	3,603,000
Texas	2,429	24.5	29	567	5.7	18	9,924,000
Utah	66	7.0	49	28	3.0	39	939,000
Vermont	83	21.4	33	25	6.4	14	388,000
Virginia	1,833	44.7	5	184	4.5	27	4,100,000
Washington	653	22.2	32	83	2.8	43	2,948,000
West Virginia	688	38.1	11	124	6.9	11	1,805,000
Wisconsin	713	17.6	36	117	2.9	40	4,040,000
Wyoming	40	11.3	46	8	2.3	48	354,000
Puerto Rico [4]	1,812	75.2	—	623	25.9	—	2,409,000

[1] Rate per 100,000 population.
[2] Rank order according to rate. The District of Columbia is classed as a city, hence is not ranked with the States.
[3] Population based on U.S. Bureau of the Census, Current Population Reports, Series P–25, No. 259, Nov. 26, 1962.
[4] Not included in totals.

Source: Tuberculosis Branch, Communicable Disease Center, Public Health Service, U.S. Department of Health, Education, and Welfare.

Appendix Table 3. New Active Tuberculosis Case Rates,[1] by State, 1953–61

State	1953	1954	1955	1956	1957	1958	1959	1960	1961
United States	53.0	49.3	46.9	41.6	39.2	36.5	32.5	30.8	29.4
Cantinental United States	52.6	48.8	46.4	41.2	39.0	36.4	32.3	30.7	29.2
Alabama	37.7	50.2	50.4	52.6	48.7	49.5	50.7	39.8	39.5
Alaska	293.4	348.6	299.1	270.5	189.0	120.2	161.8	98.2	108.1
Arizana	169.6	164.4	152.9	94.2	75.6	62.4	60.7	54.1	48.6
Arkansas	70.0	68.5	69.6	59.6	45.8	49.4	39.3	45.4	50.2
Califarnia	65.8	62.1	55.2	46.2	44.2	39.8	34.7	32.4	30.0
Calarada	35.0	29.8	25.7	26.9	24.3	19.9	17.3	17.5	16.6
Cannecticut	37.4	30.5	25.9	24.5	21.8	19.0	13.7	14.8	12.7
Delaware	60.5	64.2	42.7	37.9	33.1	35.7	32.1	31.6	34.3
District af Calumbia	142.6	92.1	107.4	95.6	84.4	91.5	77.2	67.1	65.9
Flarida	55.5	55.2	48.7	50.1	40.4	34.0	29.0	28.4	25.9
Geargia	51.9	47.6	41.5	36.9	37.0	35.1	32.7	29.1	31.4
Hawaii	84.5	83.4	85.4	77.4	48.0	46.0	36.8	45.6	46.0
Idaho	18.3	17.0	15.9	16.8	14.2	10.5	12.3	8.6	12.0
Illinois	52.6	55.4	63.0	58.2	53.6	46.9	42.3	40.2	39.9
Indiana	37.7	35.2	33.3	33.1	31.3	28.6	27.1	25.6	24.5
Iawa	17.4	16.1	13.6	12.2	10.7	14.1	8.4	12.8	6.0
Kansas	19.0	19.6	28.1	15.4	20.2	16.2	12.1	9.3	10.9
Kentucky	76.5	85.8	73.2	58.1	61.2	51.6	39.7	37.3	41.1
Lauisiana	55.8	54.3	45.9	46.1	41.6	38.7	35.5	31.6	32.2
Maine	40.5	31.6	32.9	31.0	23.8	19.7	16.7	17.1	16.1
Maryland	67.9	67.1	62.7	58.9	55.9	48.5	46.7	45.2	43.7
Massachusetts	47.0	48.2	42.2	36.6	32.8	29.4	29.0	26.4	24.8
Michigan	54.9	53.5	47.1	45.7	39.1	39.7	33.1	33.1	33.9
Minnesata	27.3	24.2	24.0	20.5	20.4	19.1	17.0	15.1	13.7
Mississippi	54.5	48.4	44.0	36.7	36.8	39.7	36.4	32.8	27.6
Missauri	51.8	45.6	42.5	38.0	36.7	33.5	30.3	26.4	25.2
Mantana	36.5	37.4	51.6	37.9	36.9	22.3	25.9	22.7	14.7
Nebraska	20.2	17.7	20.8	16.6	15.1	14.7	9.3	14.0	10.9
Nevada	68.9	71.2	42.1	36.0	35.0	41.7	37.6	23.6	25.6
New Hampshire	24.6	21.3	19.8	16.9	17.0	13.7	13.1	11.8	13.9
New Jersey	44.8	40.1	39.9	34.3	32.2	29.1	28.1	27.1	26.9
New Mexica	108.3	89.9	72.6	62.9	53.9	58.7	51.9	48.0	33.3
New Yark	71.7	64.0	58.9	55.6	52.7	47.3	42.8	40.5	36.0
Narth Caralina	35.7	38.3	32.9	30.4	27.2	26.4	24.0	23.8	22.3
Narth Dakata	34.6	27.4	23.2	18.6	18.4	14.7	17.4	17.2	13.8

See footnotes at end of table.

Appendix Table 3. New Active Tuberculosis Case Rates,[1] by State, 1953–61—Continued

State	1953	1954	1955	1956	1957	1958	1959	1960	1961
Ohio	57.8	49.2	47.4	40.2	35.2	31.9	28.9	27.9	25.2
Oklahoma	55.1	50.8	44.8	35.5	34.2	31.4	26.8	23.2	19.4
Oregon	33.1	36.4	34.4	32.0	28.5	30.0	28.8	25.0	23.2
Pennsylvania	47.6	33.2	39.4	32.9	45.2	43.5	35.0	32.7	32.9
Rhode Island	39.6	36.7	38.9	31.2	31.7	23.7	26.6	22.9	19.2
South Carolina	39.8	42.7	40.7	35.4	31.5	28.7	30.7	30.4	28.7
South Dakota	24.9	22.8	21.5	26.5	22.4	21.9	19.1	17.9	17.4
Tennessee	66.4	59.8	56.7	52.5	48.4	47.3	43.2	40.7	39.6
Texas	38.7	33.6	34.1	30.9	29.9	29.9	27.9	27.5	24.5
Utah	16.6	18.2	17.4	22.6	16.2	9.4	9.4	7.9	7.0
Vermont	36.8	37.9	40.7	29.8	23.6	32.4	20.7	21.2	21.4
Virginia	68.2	60.7	66.6	42.8	39.7	41.9	37.5	41.9	44.7
Washington	59.7	56.2	41.1	37.7	35.0	28.9	23.2	24.9	22.2
West Virginia	53.2	51.6	43.6	45.8	40.1	46.1	31.8	32.3	38.1
Wisconsin	29.3	28.6	27.1	25.0	23.4	24.0	21.8	20.7	17.6
Wyoming	23.1	20.0	20.3	23.7	18.6	29.8	15.4	16.0	11.3
Puerto Rico [2]	211.5	172.3	151.9	130.7	113.3	100.8	96.0	82.2	75.2

[1] Rate per 100,000 population. These rates have been computed using population estimates as published in Census Bureau Series P–25, No. 229, table 1, that take account of the 1960 Census.

[2] Not included in totals.

Source: Tuberculosis Branch, Communicable Disease Center, Public Health Service, U.S. Department of Health, Education, and Welfare.

Appendix Table 4. Rate [1] of New Active Tuberculosis Cases, by Age, United States, 1955–61

Year	Total	Under 5	5–14	15–24	25–44	45–64	65+
1955	46.9	16.1	8.6	41.0	57.6	72.8	80.0
1956	41.6	13.8	7.8	35.0	50.3	65.2	76.1
1957	39.2	12.4	6.8	31.3	47.2	63.5	74.0
1958	36.5	12.5	7.0	27.1	43.4	59.9	70.1
1959	32.5	11.0	6.1	22.5	39.1	53.5	64.7
1960	30.8	10.8	6.1	20.5	36.8	51.1	62.9
1961	29.4	11.5	6.6	18.5	34.8	48.4	60.4
				Percent Decline			
1955–61	37.3	28.6	23.3	54.9	39.6	33.5	24.5

[1] Rate per 100,000 population.
Data for all years include Alaska and Hawaii.

Source: Tuberculosis Branch, Communicable Disease Center, Public Health Service, U.S. Department of Health, Education, and Welfare.

Appendix Table 5. Number of New Active Tuberculosis Cases, by Age,[1] United States, 1955–61

Year	Total	Under 5	5–14	15–24	25–44	45–64	65+
1955	77,368	2,976	2,603	8,725	27,094	24,307	11,663
1956	69,895	2,621	2,470	7,515	23,757	22,123	11,409
1957	67,149	2,405	2,213	6,866	22,308	21,934	11,423
1958	63,534	2,469	2,352	6,178	20,449	20,988	11,098
1959	57,535	2,209	2,113	5,281	18,364	19,063	10,505
1960	55,494	2,198	2,190	4,950	17,217	18,470	10,469
1961	53,726	2,373	2,429	4,602	16,268	17,770	10,284
				Percent Distribution			
1955	100.0	3.8	3.4	11.3	35.0	31.4	15.1
1961	100.0	4.4	4.5	8.6	30.3	33.1	19.1

[1] Cases for which age was not reported were distributed proportionately.
Data for all years include Alaska and Hawaii.

Source: Tuberculosis Branch, Communicable Disease Center, Public Health Service, U.S. Department of Health, Education, and Welfare.

Appendix Table 6. New Active Tuberculosis Coses and Deoths in Lorge Cities [1] ond Remoinder of Country, 1960

Area	Active and probably active cases		Tuberculosis deaths (provisional)		Population (in 1,000's)	
	Number	Percent	Number	Percent	Number	Percent
United States	55,494	100.0	10,471	100.0	179,977	100.0
Large cities	17,156	30.9	2,968	28.3	28,931	16.1
Remainder of country	38,338	69.1	7,503	71.7	151,046	83.9

Cities	New active cases			Tuberculosis deoths (provisional)	
	Number	Rate	Rate rank order	Number	Rate
Total 21 cities	17,156	59.3	—	2,968	10.3
New York	4,699	60.4	9	795	10.2
Chicogo	2,815	79.3	2	379	10.7
Las Angeles	1,121	45.0	15	191	7.7
Philadelphia	1,400	70.0	4	253	12.6
Detroit	1,169	70.2	3	193	11.6
Baltimare	792	84.3	1	152	16.2
Hauston [2]	490	39.1	18	75	6.0
Cleveland	539	61.6	8	92	10.5
District of Columbia	511	67.1	5	94	12.3
St. Louis	420	56.2	12	80	10.7
Milwaukee	278	37.4	19	49	6.6
San Francisca	490	66.3	6	77	10.4
Baston	434	62.4	7	82	11.8
Dallas	204	29.7	20	40	5.8
New Orleans	254	40.2	17	105	16.6
Pittsburgh	297	49.3	14	88	14.6
San Antonia	338	57.1	10	70	11.8
Son Diego	103	17.8	21	21	3.6
Seattle	281	50.3	13	25	4.5
Buffalo	302	56.8	11	65	12.2
Cincinnati	219	43.5	16	42	8.3

[1] Includes 21 cities of 500,000 ar more population in 1960.

[2] Harris County, Tex., is included with city af Houston.

Source: Tuberculosis 8ranch, Communicable Disease Center, Public Health Service, U.S. Department of Health, Education, and Welfare.

Appendix Table 7. Form and Extent of Tuberculosis in New Active Cases, United States, 1961

Form and extent of disease	Number	Percent		
			Pulmonary	Extent
Total new reported active cases	[1] 52,671	—	—	—
Pulmonary	47,335	—	100.0	—
With extent specified	41,890	—	88.5	100.0
Minimal	8,573	—	—	20.5
Moderately advanced	18,239	—	—	43.5
Far advanced	15,078	—	—	36
Extent not specified [2]	5,445	—	11.5	—
Nonpulmonary	5,336	10.1	—	—

[1] Does not include 1,005 cases in Louisiana.
[2] Includes pulmonary cases for which extent cannot be specified (e.g., unexplained pleurisy with effusion) as well as pulmonary cases for which the extent of the lesions should have been specified.

Source: Tuberculosis Branch, Communicable Disease Center, Public Health Service, U.S. Department of Health, Education, and Welfare.

Appendix Table 8. Reasons for Closure or Conversion of Non-Federal Tuberculosis Hospitals, United States, 1954–61

	Number of reasons reported [1]		Percent distribution	
	Total	Primary reasons	Total	Primary reasons
Total	438	218	100.0	100.0
Low tuberculosis occupancy rate	172	151	39.3	69.3
Difficulties of maintaining a qualified staff	39	4	8.9	1.8
Withdrawal of or inadequate financial support	34	6	7.8	2.8
Increased cost of operation	68	7	15.5	3.2
Unsatisfactory physical condition of facility	29	3	6.6	1.4
Failure to meet licensure standards	15	3	3.4	1.4
The availability of tuberculosis facilities elsewhere	45	30	10.3	13.8
All other reasons	36	14	8.2	6.4

[1] Excludes data for Colorado.

Source: Program Evaluation and Reports Branch, Division of Hospital and Medical Facilities, Public Health Service, U.S. Department of Health, Education, and Welfare.

Appendix Table 9. Net Loss of Tuberculosis Beds in Hospitals Which Have Closed or Converted, By State, 1954–61

State	Number of hospitals				Net loss of tuberculosis beds [1]			
	Total number reported	Converted		Closed	Total	Converted		Closed
		Partially	Completely			Partially	Completely	
United States, total	227	72	84	71	23,015	7,457	9,890	5,668
Alabama	2	—	—	2	60	—	—	60
Alaska	1	—	—	1	154	—	—	154
Arizona	2	1	1	—	171	135	36	—
Arkansas	1	—	—	1	104	—	—	104
California	24	8	6	10	2,018	683	825	510

Appendix Table 10. Ownership and Size of Non-Federal Tuberculosis Hospitals Which Have Closed or Converted, United States, 1954–61

Size of hospital [1]	Number of hospitals			
	Total	State	Local government	Non-governmental
	Closed			
Total	71	7	27	37
Under 50 beds	37	2	13	22
50–99	13	—	3	10
100–149	11	3	6	2
150–199	5	1	2	2
200 and over	5	1	3	1
	Completely converted			
Total	84	12	43	29
Under 50 beds	24	—	15	9
50–99	25	—	18	7
100–149	12	—	6	6
150–199	9	4	1	4
200 and over	14	8	3	3
	Partially converted			
Total	72	17	43	12
Under 50 beds	2	—	1	1
50–99	16	1	11	4
100–149	12	2	8	2
150–199	8	3	4	1
200 and over	34	11	19	4

[1] Represents size of hospital for the year prior to closure or conversion.

Source: Program Evaluation and Reports Branch, Division of Hospital and Medical Facilities, Public Health Service, U.S. Department of Health, Education, and Welfare.

Appendix Table 11. Number of Non-Federal Tuberculosis Hospitals Which Were Closed or Converted to Other Types of Facilities, by Age of Hospital Prior to Closure or Conversion, United States, 1954–61

Age of hospital [1] prior to closure or conversion	All hospitals	Completely converted						Partially converted	Closed
		Total	General	Mental	Chronic disease	Nursing or convalescent	All other		
Total	227	84	9	[2] 9	10	[3] 43	13	72	71
Less than 10 years	15	6	—	2	1	3	—	7	2
10–19	29	13	1	—	1	7	4	4	12
20–29	32	16	3	1	3	9	—	8	8
30–39	50	18	1	1	2	13	1	18	14
40–49	66	23	4	3	2	8	6	27	16
50–59	17	4	—	1	1	1	1	4	9
60 years and over	18	4	—	1	—	2	1	4	10

[1] Represents number of years hospital was operated solely for the diagnosis and treatment of tuberculous patients.
[2] Includes 7 institutions for the mentally retarded.
[3] Includes 11 facilities reported as homes for the aged.

Source: Program Evaluation and Reports Branch, Division of Hospital and Medical Facilities, Public Health Service, U.S. Department of Health, Education, and Welfare.

Appendix Table 12. Facilities for the Care of Tuberculosis Patients in Non-Federal Hospitals,[1] by State, June 30, 1961

Area	Hospitals	Rated capacity	Beds available	Beds occupied		
				Number	Percent of—	
					Rated capacity	Beds available
Total United States	345	57,922	53,884	40,820	70.5	75.8
Alabama	8	1,179	1,183	1,158	98.2	97.9
Alaska	1	32	32	20	62.5	62.5
Arizona	12	468	469	374	79.9	79.7
Arkansas	2	1,381	1,381	984	71.3	71.3
California	36	4,518	4,107	2,893	64.0	70.4
Colorado	7	534	470	344	64.4	73.2
Connecticut	4	805	533	430	53.4	80.7
Delaware	1	125	147	147	117.6	100.0
District of Columbia	3	611	611	467	76.4	76.4
Florida	5	1,495	1,475	1,245	83.3	84.4
Georgia	1	1,217	1,217	875	71.9	71.9
Hawaii	4	756	620	422	55.8	68.1
Idaho	1	85	60	56	65.9	93.3
Illinois	26	3,580	3,493	2,520	70.4	72.1
Indiana	8	1,108	1,096	908	81.9	82.8

See footnotes at end of table.

Appendix Table 12. Facilities for the Care of Tuberculosis Patients in Non-Federal Hospitals,[1] by State, June 30, 1961—Continued

Area	Hospitals	Rated capacity	Beds available	Beds occupied		
				Number	Percent of—	
					Rated capacity	Beds available
Iawa	3	416	416	296	71.2	71.2
Kansas	3	333	250	202	60.7	80.8
Kentucky	8	1,156	1,054	867	75.0	82.3
Lauisiana	4	958	878	576	60.1	65.6
Maine	1	146	146	85	58.2	58.2
Maryland	6	1,590	1,402	1,089	68.5	77.7
Massachusetts	17	2,254	2,182	1,424	63.2	65.3
Michigan	16	2,962	2,788	2,432	82.1	87.2
Minnesata	8	791	770	413	52.2	53.6
Mississippi	1	602	542	366	60.8	67.5
Missauri	4	1,149	1,149	926	80.6	80.6
Mantana	1	295	262	192	65.1	73.3
Nebraska	1	220	145	74	33.6	51.0
Nevada	1	16	16	13	81.3	81.3
New Hampshire	1	82	82	59	72.0	72.0
New Jersey	13	2,329	2,046	1,345	57.8	65.7
New Mexica	2	252	252	187	74.2	74.2
New Yark	27	4,970	4,839	3,935	79.2	81.3
Narth Caralina	4	1,698	1,457	1,184	69.7	81.2
Narth Dakata	1	56	56	32	57.1	57.1
Ohia	22	2,987	2,650	1,938	64.9	73.1
Oklahama	4	555	540	378	68.1	70.0
Oregan	2	335	221	180	53.7	81.4
Pennsylvania	13	3,143	2,840	2,370	75.4	83.5
Rhade Island	1	158	158	140	88.6	88.6
Sauth Caralina	5	891	863	642	72.1	74.4
Sauth Dakata	1	118	118	21	17.8	17.8
Tennessee	8	1,440	1,400	1,049	72.8	74.9
Texas	16	3,498	3,220	2,614	74.7	81.2
Utah	1	100	100	49	49.0	49.0
Vermant	1	100	100	58	58.0	58.0
Virginia	5	1,292	1,284	968	74.9	75.4
Washingtan	3	728	728	574	78.8	78.8
West Virginia	3	981	981	548	55.9	55.9
Wiscansin	18	1,379	1,105	741	53.7	67.1
Wyaming	1	48	34	10	20.8	29.4

[1] Does not include tuberculosis facilities in mental and penal institutions, or in hospitals that have less than 10 tuberculosis beds.

Source: Tuberculosis Branch, Communicable Disease Center, Public Health Service, U.S. Department of Health, Education, and Welfare.

Appendix Table 13. Distribution of States by Percent of Tuberculosis Beds Occupied, United States, Apr. 1, 1954, and June 30, 1961

[Beds occupied as a percent of beds available]

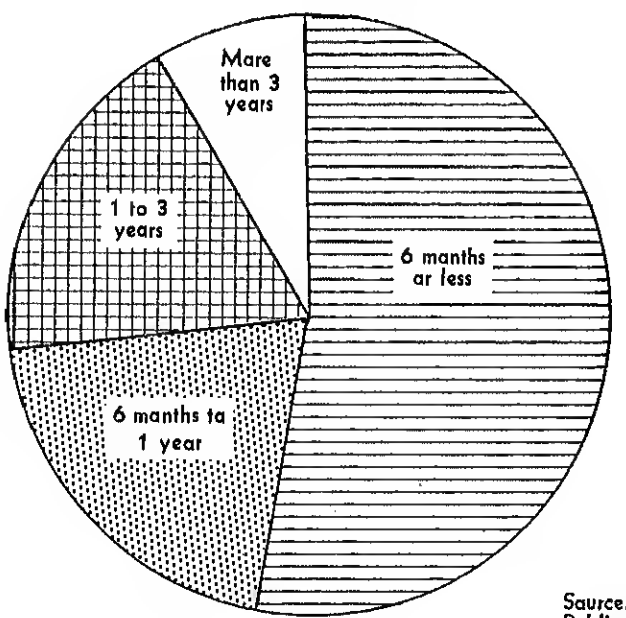
Percent range	Number of States [1]	
	1954	1961
Total United States	51	51
Over 94.9	9	2
90.0–94.9	9	1
85.0–89.9	16	2
80.0–84.9	7	12
75.0–79.9	5	5
70.0–74.9	2	13
65.0–69.9	1	6
60.0–64.9	2	1
55.0–59.9	—	4
50.0–54.9	—	2
Less than 50.0	—	3

[1] Including the District of Columbia.

Source: Tuberculosis Branch, Communicable Disease Center, Public Health Service, U.S. Department of Health, Education, and Welfare.

CHART 1.

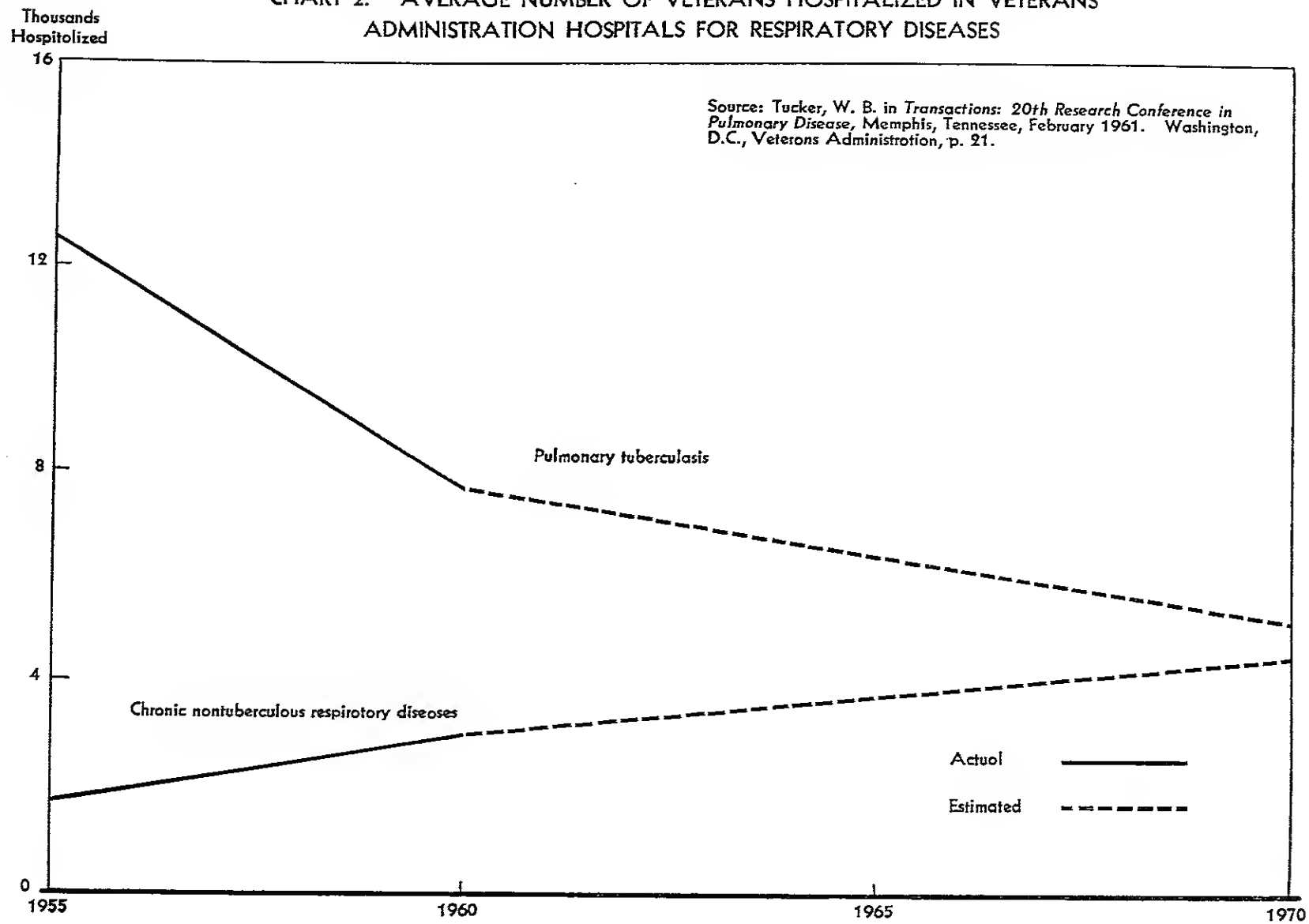
LENGTH OF TIME TUBERCULOSIS PATIENTS HAVE BEEN IN THE HOSPITAL, 1960



Months in Hospital on June 30, 1960	*Percent of Patients*
0– 5	54
6–11	20
12–17	9
18–23	4
24–29	3
30–35	2
36–59	4
60 or more	4
Total	100

Source: Tuberculosis Branch, Communicable Disease Center, Public Health Service, U.S. Department of Health, Education, and Welfare.

CHART 2. AVERAGE NUMBER OF VETERANS HOSPITALIZED IN VETERANS ADMINISTRATION HOSPITALS FOR RESPIRATORY DISEASES



Appendix B

Estimating Tuberculosis Bed Needs

Suggested Statistical Methodology

The method outlined below will provide a statistical approximation of future bed needs useful in planning. Projections based on admissions data, however, should be modified and interpreted in the light of clinical information on the health status of patients in tuberculosis hospitals. Furthermore, because of the impact changes, for example, in chemotherapy, treatment time, laboratory procedures, and institutional care could have on future plans, projections of bed needs should be used with caution and modified in accordance with later developments.

Present Need

1. Multiply the present annual number of admissions by the average length of stay in days.

2. Divide the result by the desirable occupancy rate.

3. Divide this result by 365 days.

These calculations may be expressed in the following formula:

$$\frac{\text{Number of admissions} \times \text{Average length of stay}}{\text{Desirable occupancy rate} \times \text{Number of days in year}} = \text{Present bed need}$$

Efficient utilization of tuberculosis facilities ordinarily requires an average occupancy rate of at least 80 percent. The rate depends to some extent, however, on the size of the hospital, with smaller hospitals having lower occupancy levels. In addition, the rate may vary according to the extent to which patients are separated within the hospital by categories, such as the actively infectious, those with positive or negative sputum, male or female, and the ambulatory and bedridden.

Future Need

To calculate bed requirements for inpatient tuberculosis facilities for some *future* year, additional steps are required. The method described below projects to a future year present trends in patient admissions and in the average length of stay, and relates them to a desirable occupancy rate, resulting in an estimate of the number of tuberculosis beds needed in the target year.

Before projecting future bed needs, two decisions should be made: (1) the selection of a target year, and (2) the establishment of an average occupancy rate to be maintained in tuberculosis facilities as of the target year. The target year is a date selected as the basis for projecting future bed needs, setting planning goals, and measuring progress toward them. It should be set 5 to 8 years in the future and be a year for which population projections are either available or can be easily developed. A relatively short projection period is desirable

because of the rapidly changing character of tuberculosis programs today and because of probable inaccuracies in long-range population projections for smaller areas. As the target year is approached, a new target date can be set and new estimates of need can be derived from more recent information.

An estimate can be obtained in three successive steps:

1. Calculate the estimated number of admissions to be expected in a target year.

2. Estimate the number of patient days resulting from the projected admissions in the target year.

3. Determine the number of beds required to handle the estimated number of patient days.

The following hypothetical example illustrates how tuberculosis bed needs for the target year 1967 would be calculated for a State with a population in 1960 of 3,900,000, and with 1,560 admissions to tuberculosis hospitals in that year; i.e., an admissions rate of 40 per 100,000 population.[1] These calculations assume that the downward trend in admissions (as a reflection of the incidence of new active cases) and in the length of stay in tuberculosis hospitals will continue at about the present rate.

1. *Admissions in Target Year.*

Project to the target year:[2]

a. The trend in the annual number of admissions for each 100,000 of the population served; and

b. The population for the State in hundred thousands.

[1] The figures used do not represent the actual situation in any State and were selected solely to illustrate the methodology involved. See item 15, selected bibliography, app. C, p. 46, for a more detailed discussion of the techniques for calculating bed need.

[2] It is desirable, when calculating trends, to include as many prior years as the trends will be projected into the future.

2. *Patient Days in Target Year*

Project the present trend in the average length of stay to the target year.[3]

Multiply the projected average length of stay in days by the estimated number of admissions in the target year. This will give the estimated total number of days patients will spend in tuberculosis hospitals in the target year.

Projected average length of stay	×	Projected number of admissions	=	Projected number of patient days
180	×	1,125	=	202,500

3. *Beds Needed in Target Year*

Divide the estimated number of patient days in the target year by 365 days. This will give the average daily census in the target year.

Projected number of patient days	÷	Number of days in year	=	Average daily census
202,500	÷	365	=	555

Divide the average daily census in the target year by the desirable rate of occupancy for that year. The result will be the estimated number of beds needed for inpatient care of tuberculosis in the target year.

Average daily census	÷	Desirable occupancy rate in target year	=	Beds needed in target year
555	÷	0.80	=	694

[3] Although the current average length of stay in tuberculosis hospitals is often estimated to be about 6 months, trends in the length of stay should be projected on the basis of the experience in each State.

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